# THE OIL WEEKLY

ENGINEERING « NEWS » STATISTICS

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## The Oil Man's Calendar

| | |
|---|---|
| **APR.** | |
| **18-19** | **Mid-Continent District, American Petroleum Institute Division of Production, Oklahoma City.** |
| **18-20** | **Southwest Gas Measuring Short Course, Norman, Oklahoma.** |
| **24-29** | **Oil-World Exposition, Houston, Texas.** |
| **MAY** | |
| **3-5** | **Petroleum Electric Supply Association, Houston, Texas.** |
| **3-5** | **Petroleum Industry Electrical Association, Houston, Texas.** |
| **3-5** | **Natural Gasoline Association of America, Tulsa, Oklahoma.** |
| **4-5** | **Oilbelt Safety Conference, Abilene, Texas.** |
| **9-11** | **American Institute of Chemical Engineers, Akron, Ohio.** |
| **15-18** | **American Petroleum Institute, Mid-Year Meeting, New Orleans, Louisiana.** |
| **18-20** | **National Oil Scouts Association, Houston, Texas.** |
| **21-25** | **National Association of Purchasing Agents, San Francisco.** |
| **JUNE** | |
| **3** | **Illinois-Indiana Petroleum Association, Robinson, Illinois.** |
| **15-16** | **Pennsylvania Grade Crude Oil Association, Hershey, Pa.** |
| **AUG.** | |
| **1-6** | **The Eastern United States Michigan Oil & Gas Exposition, Mt. Pleasant, Michigan.** |

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# This Week's Panorama

THE oil industry's outlook has become seriously clouded by the prevailing heavy production of crude oil.

In the week ended April 8, United States crude output averaged 3,443,900 barrels daily, or approximately 10,000 barrels a day more than the indicated market demand, as estimated for April by the Bureau of Mines.

Furthermore, the production probably will be still higher later in the month, at least in some states.

### Crude Output Excessive

Although Texas production has increased sharply under April allowables, the state still is staying about 20,000 barrels a day under its indicated market demand. Texas averaged 1,390,350 barrels daily in the week ended April 8, but demand for Texas crude in April has been estimated at 1,412,700 barrels daily. Even with the allowable gradually increasing through completion of new wells, the state probably will not over-produce its market demand in April.

Oklahoma also produced less than the market demand in the week ended April 8, output having averaged 452,250 barrels daily, or about 20,000 barrels a day less than the indicated market requirements. Other states that were within demand included Arkansas, New Mexico, Colorado, Montana, and the Eastern States.

Primarily responsible for the excess crude oil production above demand in the week ended April 8 was California, which averaged 627,000 barrels daily, or 35,000 barrels a day more than indicated demand.

Michigan production, meanwhile, exceeded demand 10,000 barrels a day; and Illinois over-produced about 7000 barrels daily; while slight excesses occurred also in Louisiana and Kansas.

### Crude Markets Unstable

Although the crude oil production of the United States as a whole is not far in excess of the national demand, the current output is seriously burdening the markets in several districts. The situation is particularly unfavorable in California, where the voluntary proration continues unsuccessful in holding production within demand, despite some improvement of the curtailment program in recent months.

Markets for crude oil remain unstable also in Illinois and Michigan, because of surplus production.

These three states in which there is serious overproduction do not have state proration, and they do not contemplate adopting such regulation.

Consequently, no early stabilizing of the markets in California, Illinois, and Michigan is in sight.

In the Mid-Continent, on the other hand, crude control has been remarkably effective in recent years, and the principal adverse influence has been the proximity of the Illinois fields and the unsettling effect of the weak Illinois crude market.

### Uncertainty in Texas

Currently, however, the industry has a new worry in the Mid-Continent; namely, the unsettled proration situation in Texas. So far, the Texas Railroad Commission has continued to be guided by the Bureau of Mines estimates of market demand in setting Texas allowables. But the Texas commission is now under new control, and it remains to be seen whether or not the Sadler-Smith regime will respect the Bureau of Mines forecasts of demand, as did the Thompson-Terrell administration until C. V. Terrell was replaced as commissioner by Jerry Sadler.

In the original order for April, the Texas commission adopted a state allowable materially above the bureau estimate of demand, although the allowable later was reduced.

### April 17 Hearing Important

Much importance is attached, therefore, to the future course of the Texas Railroad Commission, following the statewide proration hearing at Austin, scheduled Monday, April 17.

The commission will hear evidence at that meeting upon which to base May allowables.

And it remains to be seen whether or not the Texas allowables will be held within indicated market demand; while there is also an important question as to what changes, if any, will be made in further re-allocation of the state allowable among the different districts and fields.

In the several orders affecting April allowables, the Texas commission made some radical changes in the allowables of several districts of the state, and a storm of protests was precipitated.

It is anticipated that numerous operators will be at the April 17 hearing prepared to demand changes in allowables. And it is further anticipated that the commission will have to be extremely careful if it is to avoid litigation that might seriously impair Texas proration.

Inasmuch as the industry's stability depends in such large measure on stable conditions in Texas, the outlook for the whole industry has been obscured by the Texas developments.

### Refinery Runs Curtailed

Although crude oil production showed a sharp increase in the week ended April 8, crude runs to refinery stills were reduced to a level 25,000 barrels a day lower than in the previous week. Having averaged 3,145,000 barrels daily, the refinery runs

were 1.1 percent higher in the week of April 8 than in the corresponding week last year. However, demand for petroleum products is substantially better now than a year ago.

### Gasoline Situation

Gasoline production in the week ended April 8 reflected the curtailed refinery operations, having come down to 9,389,000 barrels from 9,411,000 barrels the week before, a decrease of 22,000 barrels.

Because of the reduced plant output of gasoline and comparatively large demand, the industry drew 664,000 barrels of gasoline out of storage in the week of April 8, the withdrawals having averaged about 95,000 barrels daily.

The total stocks of finished and unfinished gasoline on hand in the United States at the end of the week were 86,613,000 barrels. That was 6.1 percent less than the inventory of 92,279,000 barrels held at the comparable time last year.

In view of the fact that gasoline consumption has been running about 5 percent higher this year than last year, while the stocks of that product are about 6 percent lower, the present gasoline situation is definitely better than that which prevailed a year ago.

However, the gasoline stocks were seriously excessive last spring, and the surplus caused protracted weakness of the markets, which has persisted until now.

Although the present gasoline inventory is much more moderate than that held a year ago, it is not as low as economically desirable.

Whereas the industry entered the spring-summer season with about 87,000,000 barrels of gasoline on hand, it has been estimated that approximately 80,000,000 barrels would have been sufficient.

# Farmers Using More Petroleum

THE spring plowing season this year promises to bring a continuation of the steady increase of petroleum consumption on farms of the United States.

In recent years there has been a remarkable increase in the use of gasoline on farms, a two-year period having shown for 35 states a gain of 50 percent in gasoline consumption for non-highway purposes, which meant mostly farm use.

The increase was even more impressive in the principal tractor-farming states. In 14 of those states, there was a gain of 67 percent in two years, while several states, including Michigan, Oklahoma, Ohio, Iowa, and Illinois showed increases of around 100 percent within two years in farm use of gasoline.

### Three Causes

Farm experts attribute these remarkable increases largely to three causes: (1) the rapidly growing increase in the sale of high-compression, or gasoline-burning, tractors; (2) a growing preference of the farmer for gasoline as a fuel because of its easy starting, easy idling, and great power; and (3) introduction of rubber tires for tractors, which has enabled farmers to use their machines on hard surfaced roads.

Tractors now serve the farmer throughout the year, having been adapted to nearly all farm activities, including spring plowing and planting, cutting and handling hay, filling silos, harvesting grains and other crops, sawing wood, and numerous other jobs.

The accompanying photograph shows a tractor, owned by Charles Bennett, Linden, Indiana, pulling a 3-furrow plow.

With tractor power, a farmer is able to finish plowing and tillage in time for seasonable planting, which generally results in better crops and greater yields. He can do several times as much plowing in a day with equipment like this than he could with a plow pulled by horses.

# Field Development Is Less Active This Year

**Well completions are running about 13 percent lower in 1939 than in 1938; drilling is retarded by 15 percent lower crude prices.**

By L. J. LOGAN, Associate Editor

DRILLING apparently continues to be controlled basically by the prevailing prices of crude oil, although the field work is affected also by other influences.

For both drilling and crude prices are lower this year than last year.

### Drilling and Crude Prices

Well completions in the United States were 12.9 percent less numerous in the first three months of 1939 than in the corresponding period of 1938; while the average price of crude oil so far this year has been about 15 percent lower than that which prevailed in the first nine months of 1938.

New wells completed in the United States in January, February, and March of this year totaled 5833; whereas those finished in the first three months of 1938 numbered 6697.

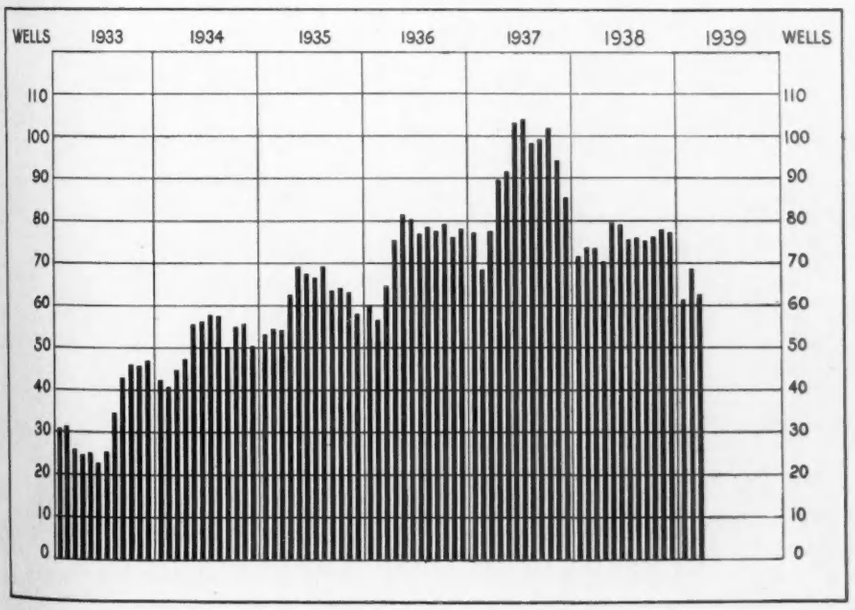
### Retarding Influences

Although the present prices of crude oil are conducive to curtailed drilling, several other factors also tend to hold down field development. One of these is the uncertainty as to whether or not additional reductions of crude oil prices will be made, inasmuch as overproduction and relatively weak markets prevail in various districts, including particularly Illinois, Michigan, and California.

Another circumstance that is tending to hold down drilling is the present all-time record reserve of crude oil under ground, following remarkably successful results in 1938 in finding new fields and pay sands and in extending established fields. Because of the extensive crude reserves already available, the incentive for exploratory drilling has been temporarily reduced.

Another influence for conservative drilling is the current agitation in the industry against excessive wells. It is being urged repeatedly that the industry has been "putting too much money into the ground"; that wider spacing of wells and fewer wells would afford more profit; that surplus wells result in lower per well allowables and longer "pay-outs" of the wells. This clamor probably has made the industry more cautious in starting new wells.

**Average Number of Wells Completed Daily in U. S.**
**(By Months, January, 1933-March, 1939)**




### Drilling Stimulants

On the other hand, certain other forces are tending to bolster drilling, notably improved level of industrial production in general since a year ago and the resultant better demand for petroleum products. Normally, increasing demand for oil necessitates larger crude oil production and the drilling of more wells. At present, however, the recovery forces are not strong enough to cause expansion of field work; they only help to bolster development.

The price of crude oil apparently has proved again to be the most potent influence on drilling.

### March Completions

Well completions in the United States in March averaged 62.4 daily, having declined sharply from the 69.4 daily in February. The March completions were

about 15 percent under those of March last year.

Figures presented herewith show how much drilling has occurred in March in each of the six years prior to this year.

| March of: | Average Number of Wells Completed Daily |
|---|---|
| 1933 | 26.0 |
| 1934 | 44.9 |
| 1935 | 54.2 |
| 1936 | 64.8 |
| 1937 | 77.5 |
| 1938 | 73.6 |
| 1939 | 62.4 |

These figures indicate that in March, field work was progressing on about the same plane as in March, 1936, although it is questionable whether the 1936 pattern will be further followed later this year.

After March of 1936 drilling increased sharply and remained relatively heavy the rest of the year. This year, spring probably will bring a seasonal expansion of field work, although the gain may not be as large as in 1936. In 1936, almost 27,000 wells were drilled in the United States. The completions rose to 33,112 in 1937, and came back down to 27,528 in 1938.

In its annual forecast of drilling, published January 30, 1939, this publication estimated that 25,965 wells would be drilled in 1939, or 5.7 percent less than in 1938.

Fulfillment of that estimate would result in about 1000 fewer completions in 1939 than in 1936.

Such a record for this year still appears possible of fulfillment, although there are some indications now that completions actually may fall below the number predicted.

### Some Areas Show Gains

Although there has been less drilling this year than last year for the United States as a whole, several districts have shown increases.

Illinois continues greatly to exceed last year's record of completions, as development of the new fields of the state proceeds. In the first three months of 1939, Illinois furnished nearly five times as many new wells as in the corresponding period last year. The completions in the state in January, February, and March of this year totaled 864 wells, compared with 186 in those months last year.

So far this year, Illinois has furnished more completions than any other state except Texas, and Illinois completions have been one third as numerous as those of Texas. The new wells in Illinois have exceeded the combined completions of Oklahoma and Kansas, the next ranking states in field development.

The adjoining state of Indiana, into which the Illinois development has spread, also continues relatively active, having had the same amount of drilling this year as last year.

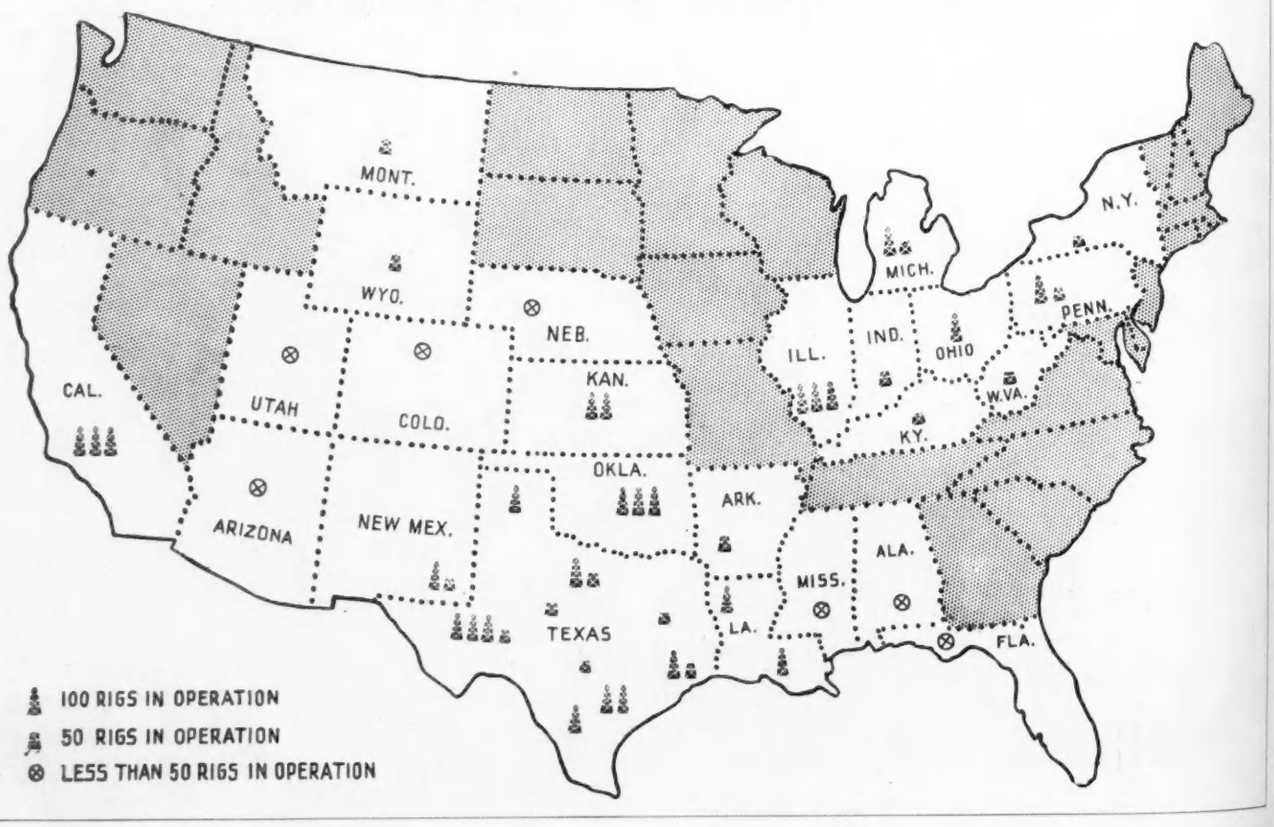
Michigan is like Illinois in having had development encouraged by the finding of new fields, the Michigan completions having been 40 percent more numerous this year than last year for the initial three months.

The Rocky Mountain states of Colorado, Montana, New Mexico, and Wyoming all have had more drilling this year than last year.

The only state in the Mid-Continent that has been more active this year than last year is Arkansas, where completions are running slightly higher; although some sections of Texas also show increases, namely, West Central Texas, the Texas Gulf Coast, and each of the three areas of South Texas: the Corpus Christi, Laredo, and San Antonio areas.

States and districts not mentioned above had fewer comple-

**More Rigs in Operation April 1 Than Month Before**



tions in the first three months of 1939 than in that period of 1938.

As anticipated at the beginning of the year, California drilling shows a sharp decline for this year. Completions there in the first three months of 1939 totaled 241, or 38.5 percent less than the 317 for the similar period last year.

Despite several increases in the prices of Pennsylvania grade crude in recent months, drilling continues lower this year than last year in the Appalachian states.

In Kansas, field work has been about 40 percent less extensive this year than last year; while Oklahoma shows a 17 percent decrease.

Louisiana development is down 15 percent, due to decreases in both the northern and coastal districts of the state.

A decline of approximately 20 percent in Texas completions has resulted from less drilling in Eastern Texas, North Texas, the Texas Panhandle, and West Texas.

Drilling rings in operation in the United States totaled 3448 on April 1, 1939. That was about 2 percent more than the 3391 in operation one month before, although 10.5 percent less than the 3843 in use one year previously.

## Number of Drilling Rigs in Use Shows Increase

| STATE OR DISTRICT | TOTAL RIGS IN OPERATION (Drilling, Rigs Up, Shut-Down) | | | | DETAILS OF APRIL 1, 1939, ACTIVITY | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Rigs in Operation | | | Prelim. Activity | | |
| | April 1 1939 | March 1 1939 | April 1 1938 | Percent Change from Year Ago | Drilling | Rigs Up | Shut-down | Derricks | Locations | Total Operations |
| Arkansas | 35 | 31 | 51 | — 31.4 | 28 | ... | 7 | 6 | ... | 41 |
| Arizona | 6 | 6 | ..... | ..... | 4 | ... | 2 | ... | 1 | 7 |
| California | 302 | 340 | 401 | — 24.7 | 183 | 62 | 57 | 34 | 36 | 372 |
| Colorado | 22 | 19 | 25 | — 12.0 | 8 | ... | 14 | ... | 2 | 24 |
| Eastern States | 771 | 767 | 496 | + 55.3 | 326 | 149 | 298 | 72 | 104 | 945 |
| Illinois | 279 | 309 | 130 | +114.5 | 53 | 64 | 162 | 43 | 54 | 376 |
| New Fields | 190 | 218 | 72 | +164.0 | 41 | 57 | 92 | 39 | 42 | 271 |
| Rest of Illinois | 89 | 91 | 58 | + 53.5 | 12 | 7 | 70 | 4 | 12 | 105 |
| Indiana | 37 | 36 | 30 | + 23.4 | 21 | 2 | 14 | 2 | 8 | 47 |
| Kentucky | 70 | 69 | 55 | + 27.2 | 35 | 6 | 29 | 12 | 24 | 106 |
| New York | 31 | 28 | 30 | + 3.3 | 19 | 7 | 5 | 2 | 4 | 37 |
| Ohio | 119 | 122 | 148 | — 19.6 | 61 | 21 | 37 | 2 | 1 | 122 |
| Pennsylvania | 172 | 130 | 109 | + 56.0 | 95 | 42 | 35 | 7 | 11 | 190 |
| West Virginia | 63 | 73 | 124 | — 49.2 | 40 | 7 | 16 | 2 | 2 | 67 |
| Kansas | 179 | 160 | 256 | — 30.0 | 131 | 21 | 27 | 8 | 8 | 195 |
| Louisiana | 214 | 189 | 211 | + 1.4 | 176 | 14 | 24 | 14 | 46 | 274 |
| North Louisiana | 82 | 74 | 89 | — 7.9 | 57 | 7 | 18 | 6 | 6 | 94 |
| South Louisiana | 132 | 115 | 122 | + 8.2 | 119 | 7 | 6 | 8 | 40 | 180 |
| Michigan | 163 | 155 | 172 | — 5.2 | 111 | 19 | 33 | 13 | 39 | 215 |
| Montana | 49 | 45 | 42 | + 16.6 | 22 | ... | 27 | ... | 5 | 54 |
| Nebraska | 1 | 1 | 3 | — 66.7 | 1 | ... | ... | ... | ... | 1 |
| New Mexico | 126 | 130 | 133 | — 5.3 | 93 | 8 | 25 | 7 | 16 | 149 |
| Oklahoma | 289 | 321 | 360 | — 19.7 | 168 | 25 | 96 | 27 | 11 | 327 |
| Southeastern States | 18 | 22 | 20 | — 10.0 | 6 | 1 | 11 | 3 | 2 | 23 |
| Alabama | 4 | 6 | 4 | ..... | 1 | ... | 3 | ... | 1 | 5 |
| Florida | 5 | 5 | 4 | + 25.0 | 1 | ... | 4 | 2 | ... | 7 |
| Mississippi | 9 | 11 | 12 | — 25.0 | 4 | 1 | 4 | 1 | 1 | 11 |
| Texas | 1,203 | 1,146 | 1,602 | — 31.8 | 900 | 83 | 220 | 69 | 346 | 1,618 |
| East Texas Field | 5 | 10 | 100 | — 95.0 | 2 | ... | 3 | 2 | 2 | 9 |
| East Texas Border Co.'s | 9 | 10 | 32 | — 71.9 | 3 | 1 | 5 | 2 | 1 | 12 |
| Rest of East Texas | 39 | 32 | 44 | — 11.3 | 21 | 2 | 16 | 3 | 10 | 52 |
| North Texas | 163 | 148 | 308 | — 47.0 | 119 | 9 | 35 | 7 | 48 | 218 |
| South Texas | 340 | 329 | 393 | — 19.1 | 256 | 35 | 49 | 29 | 93 | 462 |
| Corpus Christi Area | 180 | 173 | 229 | — 21.4 | 152 | 16 | 12 | 11 | 63 | 254 |
| Laredo Area | 95 | 95 | 99 | — 3.9 | 62 | 14 | 19 | 11 | 21 | 127 |
| San Antonio Area | 65 | 61 | 65 | ..... | 42 | 5 | 18 | 7 | 9 | 81 |
| Texas Gulf Coast | 144 | 153 | 155 | — 7.1 | 135 | 4 | 5 | 20 | 80 | 244 |
| Texas Panhandle | 77 | 71 | 128 | — 39.9 | 52 | 10 | 15 | 3 | 15 | 95 |
| West Texas | 342 | 310 | 389 | — 12.1 | 274 | 11 | 57 | 3 | 84 | 429 |
| West Central Texas | 84 | 83 | 53 | + 58.5 | 38 | 11 | 35 | ... | 13 | 97 |
| Utah | 1 | 1 | 6 | — 83.3 | 1 | ... | ... | ... | ... | 1 |
| Wyoming | 69 | 58 | 65 | + 6.2 | 26 | 3 | 40 | ... | 3 | 72 |
| Total United States | 3,448 | 3,391 | 3,843 | — 10.5 | 2,182 | 385 | 881 | 253 | 619 | 4,320 |

## Well Completions and Crude Oil Production Lower in 1939 than in 1938

| STATE OR DISTRICT | †MARCH, 1939 COMPLETIONS AND CRUDE OIL PRODUCTION | | | | | | COMPLETIONS AND PRODUCTION IN FIRST THREE MONTHS, 1939 AND 1938 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | WELLS COMPLETED | | | DETAILS OF 1939 DRILLING | | | | BARRELS PRODUCTION | | |
| | Total Wells | Oil | Gas | Dry | Initial Production | Production for March | 1939: 3 Mo. | 1938: 3 Mo. | Percent Change | Oil | Gas | Dry | Initial Production | 1939: 3 Months | 1938: 3 Months | Percent Change |
| Arkansas | 11 | 9 | ... | 2 | 4,252 | 1,655,950 | 56 | 49 | + 14.3 | 42 | ... | 14 | 13,977 | 4,728,850 | 4,173,600 | +13.0 |
| California | 81 | 71 | 1 | 9 | 51,637 | 19,356,500 | 241 | 317 | — 38.5 | 201 | 2 | 38 | 133,345 | 56,145,200 | 65,425,200 | +14.2 |
| Colorado | 4 | ..... | 1 | 3 | ..... | 116,800 | 6 | 3 | + 50.0 | 1 | 1 | 4 | 210 | 353,500 | 374,500 | — 5.6 |
| Eastern States | 480 | 329 | 75 | 76 | 66,176 | ‡2,997,100 | 1,768 | 1,637 | + 8.0 | 1,132 | 287 | 349 | 197,015 | 18,601,900 | 12,386,700 | —30.4 |
| Illinois | 239 | 199 | 2 | 38 | 63,895 | 5,128,750 | 864 | 186 | +365.0 | 682 | 13 | 169 | 188,619 | 13,471,100 | ..... | ..... |
| Indiana | 7 | 1 | 1 | 5 | 1,000 | ..... | 30 | 30 | ..... | 7 | 8 | 15 | 1,675 | ..... | ..... | ..... |
| Kentucky | 30 | 13 | 5 | 12 | 898 | ..... | 149 | 165 | — 9.7 | 66 | 19 | 64 | 5,515 | ..... | ..... | ..... |
| New York | *33 | *32 | 1 | ... | 134 | ..... | *115 | *191 | — 39.8 | *93 | 17 | 5 | 384 | ..... | ..... | ..... |
| Ohio | *48 | *11 | 24 | 13 | 117 | ..... | *194 | 240 | — 19.1 | 34 | 103 | 57 | 328 | ..... | ..... | ..... |
| Pennsylvania | *78 | *67 | 9 | 2 | 88 | ..... | *278 | *610 | — 54.4 | *231 | 32 | 15 | 292 | ..... | ..... | ..... |
| West Virginia | 45 | 6 | 33 | 6 | 44 | ..... | 138 | 215 | — 35.8 | 19 | 95 | 24 | 201 | ..... | ..... | ..... |
| Kansas | 82 | 59 | 2 | 21 | 73,937 | 4,849,900 | 284 | 465 | — 38.9 | 202 | 8 | 74 | 249,375 | 13,552,300 | 15,838,600 | —13.8 |
| Louisiana | 79 | 45 | 3 | 31 | 13,041 | 7,098,500 | 223 | 264 | — 15.5 | 144 | 8 | 71 | 46,118 | 22,662,850 | 22,987,500 | — 0.1 |
| North Louisiana | 37 | 23 | 1 | 13 | 7,859 | 2,204,750 | 92 | 118 | — 22.0 | 60 | 4 | 28 | 21,283 | 6,405,800 | 7,104,200 | — 9.8 |
| South Louisiana | 42 | 22 | 2 | 18 | 5,182 | 5,953,500 | 131 | 146 | — 10.6 | 84 | 4 | 43 | 24,836 | 17,316,850 | 15,883,200 | + 9.0 |
| Michigan | 92 | 61 | 3 | 28 | 29,015 | 1,803,550 | 270 | 192 | + 40.6 | 154 | 7 | 107 | 65,731 | 4,866,050 | 4,579,450 | + 6.0 |
| Montana | 4 | 3 | ... | 1 | 505 | 422,450 | 22 | 12 | + 83.2 | 17 | ... | 5 | 1,246 | 1,222,950 | 1,194,600 | + 2.5 |
| Nebraska | ..... | ..... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| New Mexico | 43 | 37 | ... | 6 | 26,060 | 3,362,900 | 138 | 121 | + 14.0 | 119 | 4 | 15 | 76,179 | 9,275,900 | 9,528,100 | — 2.5 |
| Oklahoma | 141 | 96 | 7 | 38 | 39,350 | 13,707,750 | 440 | 531 | — 17.1 | 265 | 26 | 149 | 84,871 | 39,046,600 | 47,235,750 | —17.6 |
| Southeastern States | ..... | ..... | ... | ... | ..... | ..... | 2 | 6 | — 66.7 | ..... | ..... | 2 | ..... | ..... | ..... | ..... |
| Alabama | ..... | ..... | ... | ... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... |
| Florida | ..... | ..... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Mississippi | ..... | ..... | ... | ... | ..... | ..... | 1 | 5 | — 80.0 | ..... | ..... | 1 | ..... | ..... | ..... | ..... |
| Tennessee | ..... | ..... | ... | ... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Texas | 611 | 425 | 15 | 171 | 279,462 | 41,037,150 | 2,485 | 3,081 | — 19.3 | 1,821 | 61 | 603 | 1,331,590 | 118,936,400 | 116,885,200 | + 1.8 |
| East Texas Field | 33 | 33 | ... | ... | 127,159 | 11,556,550 | 191 | 605 | — 68.4 | 189 | ... | 2 | 550,429 | 34,049,000 | 39,824,400 | —14.5 |
| Rest of East Texas | 15 | 6 | 2 | 7 | 2,292 | 2,994,450 | 66 | 134 | — 50.7 | 30 | 8 | 28 | 7,562 | 8,521,950 | 8,195,150 | + 4.0 |
| North Texas | 143 | 92 | ... | 51 | 34,258 | 2,520,900 | 367 | 479 | — 23.4 | 229 | 1 | 137 | 94,479 | 7,182,150 | 6,116,550 | +17.0 |
| South Texas | 216 | 144 | 2 | 70 | 56,964 | 7,723,450 | 702 | 645 | + 8.8 | 492 | 15 | 195 | 191,452 | 22,118,300 | 20,077,100 | +9.8 |
| Corpus Christi Area | 97 | 78 | 1 | 18 | 47,774 | ..... | 312 | 263 | + 18.6 | 254 | 10 | 48 | 162,403 | ..... | ..... | ..... |
| Laredo Area | 78 | 45 | 1 | 32 | 7,410 | ..... | 274 | 271 | + 1.1 | 185 | 4 | 85 | 24,937 | ..... | ..... | ..... |
| San Antonio Area | 41 | 21 | ... | 20 | 1,780 | ..... | 116 | 111 | + 4.5 | 53 | 1 | 62 | 4,112 | ..... | ..... | ..... |
| Texas Gulf Coast | 106 | 89 | 2 | 15 | 27,528 | 6,749,700 | 366 | 359 | + 1.7 | 284 | 16 | 66 | 61,163 | 19,539,250 | 17,320,350 | +12.8 |
| Texas Panhandle | 22 | 14 | 7 | 1 | 4,319 | 2,019,900 | 80 | 190 | — 58.0 | 65 | 12 | 3 | 25,066 | 5,733,100 | 6,014,350 | — 4.7 |
| West Texas | 154 | 134 | 1 | 19 | 138,440 | 6,511,250 | 489 | 606 | — 19.3 | 429 | 2 | 58 | 399,227 | 18,880,250 | 16,759,200 | +12.7 |
| West Central Texas | 27 | 9 | 1 | 17 | 1,062 | 951,000 | 94 | 63 | + 49.2 | 33 | 3 | 58 | 2,212 | 2,746,250 | 2,578,100 | + 6.5 |
| Utah | ..... | ..... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Wyoming | 14 | 8 | ... | 6 | 1,928 | 1,648,000 | 28 | 19 | + 47.4 | 17 | 1 | 10 | 6,785 | 4,727,100 | 4,366,250 | + 8.2 |
| Total United States | 1,747 | 1,239 | 107 | 401 | 701,923 | 104,245,100 | 5,833 | 6,697 | — 12.9 | 4,213 | 405 | 1,450 | 2,397,883 | 298,639,650 | 304,975,450 | — 2.1 |

† March completions cover not the calendar month, but the four weeks, or 28 days ended March 25.
* Includes water-input wells.
‡ Does not include Illinois.

# Moderately Hopeful By Oil Industry

**Strict regulation of crude oil production and refinery runs regarded as essential, although better demand for oil considered encouraging.**

OIL company executives have expressed their views on the industry's outlook for 1939, in addition to diagnosing the difficulties and generally reduced earnings of 1938, in lately issued annual reports to stockholders.

Those reports afford an insight into the opinions of the men who head the prominent oil companies, and the opinions as reflected in the statements are herewith set forth, having been classified by subjects.

### Outlook Considered Hopeful

Most of the executives expressed hope that 1939 would prove satisfactory from the standpoint of earnings. There was reference to the anticipated improvement of business in general and to the probable increases in demand for petroleum. One official said that unfavorable results of 1938 were due in part to numerous situations of nonrecurrent nature and that it would be misleading to assume that many of them would occur again in 1939. Two executives mentioned indications of strengthening prices and better volumes of business, and others commented on the relatively favorable statistical position of the industry.

On the other hand, some unfavorable factors in the oil situation also were cited, including particularly the threat of overproduction of crude this year, the danger of over-refining, and the possibility that gasoline inventories would be burdensome.

### Lower Earnings Analyzed

Reduced earnings in the petroleum industry in 1938 were attributed generally to lower prices for refined products, the reductions in crude oil prices in the latter part of the year, and the resultant write-down of inventory value. The lower prices, in turn, were blamed on the business recession, overproduction of crude oil, excessive refinery runs, and destructive competitive practices.

However, other causes for smaller earnings also were cited. One executive expressed the opinion, for instance, that numerous circumstances of nonrecurrent nature were materially responsible. Among them he mentioned these: (1) the general reduction of pipe line rates, which caused important readjustments; (2) the further adoption of the Iowa plan of marketing, which has tended to create unsettled retail markets; and (3) the continued growth of demand for heating oils, which has caused refiners to make surplus gasoline in the winter as a sort of by-product of the manufacture of the required heating oils.

In several of the reports, comment was made on the fact that earnings in the oil industry in 1938 were adversely affected by the rigidity of operating expenses in the face of unstable markets and reduced prices.

### Crude Reserves Emphasized

In more than half of the annual reports, references were made to crude oil reserves of the companies. In practically all cases, the underground reserves of the companies were reported to be larger on December 31, 1938, than one year previously, despite the production during 1938. These reports tended to confirm the American Petroleum Institute survey issued early this year, in which it was stated that known reserves of oil were at a new all time peak at the end of 1938.

### Miscellaneous Subjects

Various special subjects of interest and importance were discussed in the annual reports. One executive gave figures on his company's capital expenditures for the year and said they illustrated the fact that capital must be supplied

**EDWARD G. SEUBERT**
**President, Standard Oil Company (Indiana).**

**"Lower prices for products and the write-down of inventory value caused by reduction in crude prices in October were the outstanding specific causes (for lower earnings in 1938)."**

Blank & Stoller

**HENRY M. DAWES**
**President, The Pure Oil Company.**

**"In my opinion, the broad general view of the industry is favorable, in spite of disappointment that the results of 1938 were not as satisfactory as they should have been under the basically favorable conditions."**

Blank & Stoller

# Outlook Seen Leaders

By L. J. LOGAN
Associate Editor

to provide jobs and to equip workers with tools.

The desirability of unit development of oil fields was discussed in several reports.

Advances in refining processes and facilities were cited in several reports, and the substantial expenditures on plants in recent years were reflected.

Most of the executives commented with pride on the favorable wages and working conditions provided for employees.

The proposals for federal government regulation of the oil industry were mentioned in some of the reports, and opposition to such control was voiced in most instances.

## The Oil Industry's Outlook

Henry M. Dawes, president, The Pure Oil Company: "In my opinion, the broad general view of the industry is favorable, in spite of disappointment that the results of 1938 were not as satisfactory as they should have been under the basically favorable conditions.

" . . . It is my opinion that the less favorable operations of 1938 were due in large measure to the cumulative effect of a great number of individually minor considerations, most of which were of a non-recurrent nature, and that it would be misleading to assume that many of them will again occur in 1939."

W. S. Hallanan, president, Plymouth Oil Company: "For 1939 the industry looks forward to sharing with other industries the benefits of the expected improvement in the general economic situation."

George A. Hill, Jr., president, Houston Oil Company: "The company faces the future with confidence."

W. T. Holliday, president, Standard Oil Company of Ohio: "There are indications of strengthening prices and better volume."

William F. Humphrey, president, Tide Water Associated Oil Company: "As in past years, the majority of producers, through compulsory and voluntary curtailment programs, have endeavored to prevent the production of crude oil in excess of market demand. The discovery of new pools, which in some instances have been allowed to produce with little or no restriction in production, and the tendency to operate refineries in excess of demand for the products threaten further undermining of the conservation efforts of producers. The industry is making every effort to meet the serious situation confronting it, and your company (Tide Water) is cooperating in every reasonable and proper manner."

M. C. McGehee, Jr., president, Texas Gulf Producing Company: "It shall be our purpose in planning for the future to pursue a policy of conservatively planned expansion, and I believe that the outlook for 1939 is encouraging."

J. R. Penn, president, Texas Pacific Coal and Oil Company: "A larger number of deep wells was drilled (by the company) in 1938, with consequent higher well costs than in prior years. This, together with reduced allowables under proration, tends to lengthen the period required for the recovery of capital.

"Drilling operations are planned on a basis of lease requirements, and it is hoped that excessive drilling, which has marked the industry, will not continue to the detriment of orderly development."

Frank Phillips, chairman, and K. S. Adams, president, Phillips Petroleum Company: "There are at present several indications that 1939 will be a better year than 1938, although the oil industry's earnings for the first quarter of this year probably will be less than for the same period last year. It is estimated that motor fuel consumption will increase approximately 5 percent in 1939. With the continued reduction in crude oil stocks and the maintenance of gasoline stocks at normal working levels, it is reasonable to expect an increase in prices during the heavy consuming season resulting in increased earnings for the year . . .

"We have confidence in the future of this great and essential industry and have every reason to believe that it will continue to go forward year after year. The factors which are at present disturbing are so susceptible to correction

**J. HOWARD PEW**
**President, Sun Oil Company.**

**"The disposition of government to impose unfair conditions on some industries for the benefit of others is becoming a menace to free enterprise and a discouragement to initiative; and the oil industry is a favorite target."**

**R. G. A. VAN DER WOUDE**
**President, Shell Union Oil Corporation.**

**"Excessive production and refinery runs, since the commencement of 1939, have once more caused gasoline stocks to accumulate at a rate which, if not remedied in time, will result in an unbalanced gasoline inventory position at the commencement of the consuming season."**

Blank & Stoller

**W. T. HOLLIDAY**
**President, Standard Oil Company of Ohio.**
**"There are indications of strengthening prices and better volume."**

**J. W. VAN DYKE**
**Chairman, Atlantic Refining Company.**
**"Before jobs can be had, capital must be supplied to provide the worker with the tools of his business or trade."**
Blank & Stoller

that it hardly seems possible for them to continue long."

W. G. Skelly, president, Skelly Oil Company: "The statistical position of the oil industry is stronger than it was a year ago. The industry's gasoline inventory is larger than is necessary for working stocks, but is 7 percent below the figure of a year ago. Crude oil above ground is likewise less in amount than it was a year ago, the decline of this inventory being 10 percent.

"This improved statistical position, if accompanied by a continuance of reasonably effective control of production through proration and by some measure of sustained recovery from the business recession, should make for profitable operation of the oil business this year."

J. W. Van Dyke, chairman, Atlantic Refining Company: "As and when the price structure of the industry is freed from the effects of the currently operating depressants, and business in general shakes off the effects of its latest set-back, your company (Atlantic) will be in a position to take full advantage of the increasing opportunities for progress which such a betterment of conditions will provide."

R. G. A. van der Woude, president, Shell Union Oil Corporation: "The two factors which enable state conservation authorities to function successfully are the Interstate Compact and the Connally Act. It is to be hoped that these important measures, which expire during 1939, will be renewed, preferably on a permanent basis. It is noteworthy that, although an overall reduction in the crude oil inventory was achieved during the year, there is, in consequence of greatly increased production in Illinois, which at present has no conservation law, a grave danger of excessive development jeopardizing the general crude oil situation. Conditions in California became critical in the latter part of the year due to overproduction of crude oil, and though it was to some extent corrected by voluntary curtailment of production by some operators, more comprehensive and equitable measures are necessary if reasonable stability is to be achieved.

"The experience of the industry in 1937-38 seems to have been to a large extent forgotten and excessive production and refinery runs, since the commencement of 1939, have once more caused gasoline stocks to accumulate at a rate which, if not remedied in time, will result in an unbalanced gasoline inventory position at the commencement of the consuming season.

"While it has often been pointed out that the industry deserved commendation for supplying better quality products at lower prices, it is also true that, in order to attract the necessary additional capital, and to encourage the initiative so vital to growth and progress, a fair return must be obtained on the industry's capital investment. Under existing conditions, generally speaking, not only does the producer of crude oil obtain an inadequate return on his investment, especially considering the increasing hazards involved, but the refiner and marketer do not realize prices for their products commensurate with their investments in facilities. . . . It is also appropriate to point out that higher wage standards, the introduction of retirement pension plans and other employee benefits can only be maintained if satisfactory returns on their investments are obtained by the producer, refiner, and marketer alike."

## Causes of Reduced Earnings

Craig F. Cullinan, president, American Republics Corporation: "The oil subsidiaries (of American Republics Corporation) operated at a loss, due, principally, to the market situation existing during the year."

Henry M. Dawes, president, The Pure Oil Company: ". . . the less favorable results of 1938 were due to the cumulative effect of a number of developments which were relatively unimportant individually, but collectively destructive . . . There was a general reduction of pipe line and gathering rates which brought about a train of readjustments involving directly or indirectly all phases of the business . . . The pressure of . . . gasoline (made as a sort of by-product in the winter in supplying heavier demand for heating oils) upon the market in the last year or two has been somewhat unsettling . . . The industry in the last two or three years has generally adopted what is called the Iowa plan of distribution . . . Many other instances of adjustments which have been made or were in process during the last 12 months might be cited."

O. D. Donnell, president, The Ohio Oil Company: "The further curtailment of runs from properties

**WILLIAM F. HUMPHREY**
**President, Tide Water Associated Oil Company.**
**"The discovery of new pools . . . and the tendency to operate refineries in excess of demand for the products threaten further undermining of the conservation efforts of producers."**

**O. D. DONNELL**
**President, The Ohio Oil Company**
**Earnings in 1938 were adversely affected by curtailed crude oil production, "lower crude oil prices, unprofitable realization on refined products, and reduced pipe line rates."**

# "TAKE IT AWAY, GRAVITY!"

*TWO "CATERPILLAR" D13000 ENGINES INSTALLED IN PUMPING STATION OF THE PETROL CORPORATION, LOS ANGELES*

MATCHING THE dependability of Nature's forces is a big order. Yet "Caterpillar" Diesel Power is doing right well in that direction on this line-pumping job on the West Coast. . . . Day after day, two D13000 "Caterpillar" Diesel Engines, driving Worthington pumps, keep throbbing away—each pumping 700 to 1000 barrels per hour 400 yards up-hill into the storage tanks you see at the top. There, turned over to the power of *Gravity*, the oil continues on its way "down to the sea" and into the waiting ships.

A well-earned reputation for *performance* won the job for "Caterpillar" Diesels—just as it is doing on many other pipe-line pumping jobs throughout the country. *Low maintenance*, unsurpassed *operating economy* and unequaled *parts-and-service facilities* are other high-points of preference for these correctly designed and precision-built engines. Their *versatility* fits them to any type of pumping unit. Their *simplicity* does away with frequent or delicate adjustments. No specially trained attendant is necessary. No troublesome water problem! And their long life spreads investment write-offs thinly over the years.

*Leading manufacturers of pipe-line and oil-field equipment power their products with "Caterpillar" Diesel Engines.*

**CATERPILLAR TRACTOR CO., PEORIA, ILL.**

# CATERPILLAR DIESEL ENGINES

REG. U.S. PAT. OFF.

***NINE SIZES—32 TO 160 HORSEPOWER***

**W. G. SKELLY**
**President, Skelly Oil Company.**
**"The statistical position of the oil industry is stronger than it was a year ago."**
Blank & Stoller

**DAN MORAN**
**President, Continental Oil Company.**
**"Generally depressed industrial conditions . . . adversely affected the demand for petroleum refined products during 1938."**

which were already under rigid proration . . . was responsible for a loss . . . in the net production of the company...Other contributing factors were lower crude oil prices, unprofitable realization on refined products, and reduced pipe line rates."

George A. Hill, Jr., president, Houston Oil Company: "During 1938 the stability of the oil industry was adversely affected by various factors, both within and without the industry. The general business recession made consumptive demand for petroleum products less than normal, and excessive stocks of refined products created an uneconomic and unbalanced statistical position.

"New flush production in Illinois (where no state regulatory body has yet been authorized by law) and excessive production elsewhere (as measured by restricted production in Texas under proration orders) made difficult of achievement by the conservation authorities of an approximate balance between the supply of and demand for crude oil and its products."

William F. Humphrey, president, Tide Water Associated Oil Company: "The decrease in net income for the year 1938 is principally attributable to a marked reduction in profits on the volume of refined products marketed in the Mid-Continent and Eastern territories. During 1938 realizations in these areas declined materially as a result of over-production of crude oil and severe competition for the consumers' requirements of motor gasoline and other refined products. To some extent these adverse conditions were offset by profits on increased volume of crude oil sold during the year by the Associated (Pacific Coast) division of the company."

Roy B. Jones, president, Panhandle Producing & Refining Company: "Although there was an increase of 80,668 barrels processed through the (company's) three refineries, and an increase of 2,030,159 gallons of gasoline produced, with an increase of 4,305,301 gallons of gasoline marketed in trucks from the refineries, the low prices, both tank car and tank wagon, which prevailed during a greater part of the year, resulted in a loss of $22,516 in the refining department (including marketing), equivalent to $.013 per barrel of crude processed."

Dan Moran, president, Continental Oil Company: "Generally depressed industrial conditions, combined with reduced activity in agricultural areas due to lower prices for farm products, and a falling off in tourist travel, adversely affected the demand for petroleum refined products during 1938."

J. Howard Pew, president, Sun Oil Company: "With the slackened demand for these three most important products (gasoline, lubricants, and fuel oil), prices weakened, and for the full year the profits of the industry were greatly below those of the preceding year."

Frank Phillips, chairman, and K. S. Adams, president, Phillips Petroleum Company: "In spite of the continued high volume of sales, profits in the industry were far below 1937 largely because of lower prices for finished products during the entire year and a reduction in the price of crude oil in October, 1938.

"Overproduction and destructive competitive practices within the industry were responsible for these lower prices and decreased profits."

T. Rieber, chairman, and W. S. S. Rodgers, president, The Texas Corporation: "The earnings in 1938 were adversely affected by the decline in gasoline prices. These prices continued the downward trend which started in the last quarter of 1937 and throughout the year were below parity with crude oil prices . . . In August, 1938, the price of East Texas crude oil was reduced 10 cents a barrel. This was followed in October, 1938, by a reduction of 20 cents per barrel in the Oklahoma-Kansas fields, and general reductions up to 20 cents per barrel in other fields east of California, including a further reduction in the price of East Texas crude of 15 cents per barrel."

Edward G. Seubert, president, Standard Oil Company (Indiana): "Conditions which affected business in general and the oil industry in particular are responsible for the decline (in earnings) in 1938. Lower prices for products and the write-down of inventory value caused by reduction in crude prices in October were the outstanding specific causes."

Reese H. Taylor, president, and M. G. Kerr, comptroller, Union Oil Company of California: "The decreased profit (for 1938) is due principally to lower crude oil production, decreased sales volume, increased pay rolls and taxes, and large additions to inventories, whereas withdrawals from inventories were made in 1937."

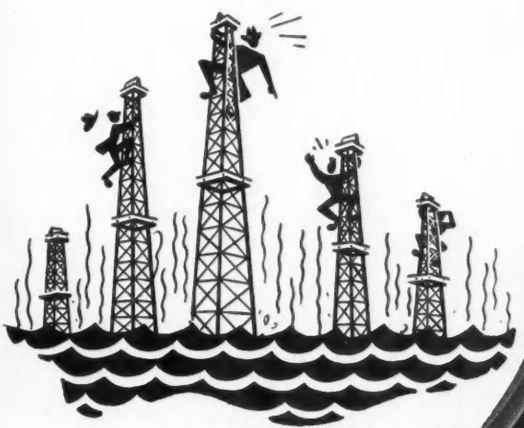
J. W. Van Dyke, chairman, Atlantic Refining Company: "Much might be written about the cause (of low prices and reduced earnings in 1938). In my opinion it may be summarized as the impact of the increasing crude oil production from the relatively new fields in southern Illinois, southern Louis-

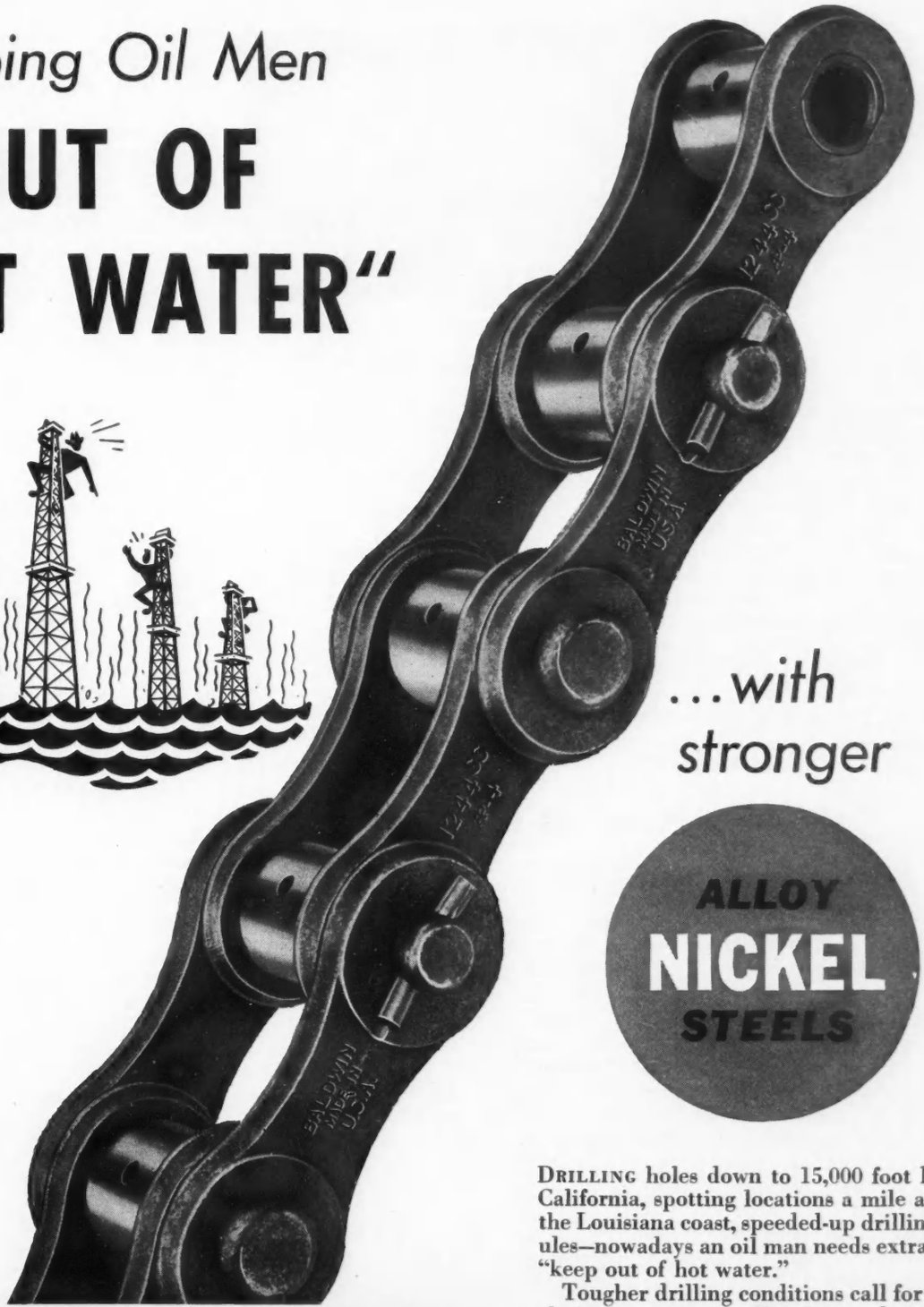
**W. S. HALLANAN**
**President, Plymouth Oil Company.**
**"For 1939, the industry looks forward to sharing with other industries the benefits of the expected improvement in the general economic situation."**
Blank & Stoller

**J. R. PENN**
**President, Texas Pacific Coal and Oil Company.**
**"It is hoped that excessive drilling, which has marked the industry, will not continue to the detriment of orderly development."**
Blank & Stoller

*Keeping Oil Men*

# "OUT OF HOT WATER"





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**ALLOY NICKEL STEELS**

**BALDWIN-DUCKWORTH MASTER CHAIN**

Pitch, 4". Weight, 16½ lbs. per ft.
Speeds in excess of 1,500 ft. per min.

| | | |
|---|---|---|
| Side links . . . . . | SAE 3140 (Ni-Cr.) | Heat treated |
| Pins . . . . . | SAE 2315 (3½ Ni.) | Case hardened |
| Bushings . . . . . | SAE 3115 (Ni-Cr.) | Case hardened |
| Rollers . . . . . | SAE 3140 (Ni-Cr.) | Heat treated |

DRILLING holes down to 15,000 foot levels in California, spotting locations a mile at sea off the Louisiana coast, speeded-up drilling schedules—nowadays an oil man needs extra help to "keep out of hot water."

Tougher drilling conditions call for tougher chains on rotary rigs. Toughest and strongest of all is said to be the new Master chain developed by the Baldwin-Duckworth Chain Corp., Springfield, Mass. With links, pins, bushings and rollers of Nickel alloy steels, this chain has a minimum ultimate strength of 185,000 lbs. That's quite a minimum!

From drill bit to crown block, from Christmas tree to filling station pumps, the added strength and wear resistance of Nickel alloy steels earn a bonus of savings, and peace of mind, for oil men. Questions about uses of Nickel are welcome. Please phone, wire or airmail your inquiry to:

**THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK, N. Y.**

iana, and, to a lesser extent, southwestern Arkansas, upon the fairly stabilized production of the principal oil producing states of the Mid-Continent area at a time when the total demand for products from the United States refiners was decreasing. The term 'stabilized production' has reference to the proration of well production by such states as Texas, Oklahoma, and Kansas, under a loosely-knit states' compact, approved by act of Congress.

"The extent to which this development would affect the industry was soon made clear by a partial loss of established markets by certain of the older producing fields, and by the reaction of new raw material and transportation costs upon the make-up of petroleum product prices in certain areas. These forces all operated to bring about a state of disequilibrium in the industry, expressed tellingly by the progressive weakening of product prices. These conditions will find adjustment in time, as somewhat similar conditions have in the past."

**FRANK PHILLIPS** **K. S. ADAMS**

**Chairman and President, Phillips Petroleum Company.**

**"There are at present (March 15) several indications that 1939 will be a better year than 1938, although the oil industry's earnings for the first quarter of this year probably will be less than for the same period last year."**

Blank & Stoller

R. G. A. van der Woude, president, Shell Union Oil Corporation: "Because of over-optimistic views as to future consumption, the industry entered the year 1938 with excessive inventories, which resulted in lower price structures, with consequent adverse effects on the financial returns."

## Federal Control of Oil

W. S. Hallanan, president, Plymouth Oil Company: "There has occurred within recent months a renewed agitation for federal control or regulation of the industry . . .

"The lack of cooperation from the regulatory bodies of Louisiana and Arkansas, and the failure up to this time of the state of Illinois to enact conservation laws to control the very substantial crude production developed in that state, has presented almost insuperable obstacles to the working out of a balanced program of production and refinery operations with market demand. However, there is no reason to believe that a solution cannot eventually be found when the opinion of men who comprise the industry has been properly aroused. Our house can be set in order, and it is not too much to believe that the day is not far distant when that objective can be realized. It must be quickly and realistically done if the petroleum industry expects to maintain itself free from complete regulation by the federal government. So far as this company is concerned, from our experience, we believe that it is far better to 'bear the ills we have than to flee to those we know not of.'"

Frank Phillips, chairman, and K. S. Adams, president, Phillips Petroleum Company: "The Interstate Oil Compact of six principal oil producing states has accomplished much in reducing wasteful overproduction of crude oil, but the oil compact can only recommend conservation and proration measures; it is without authority either to issue or enforce the regulations necessary to prevent physical and economic waste. Unless the compact is expanded to include all oil producing states, and given the power to limit crude oil production to bring it more nearly into balance with demand, a more authoritative method of control should be devised.

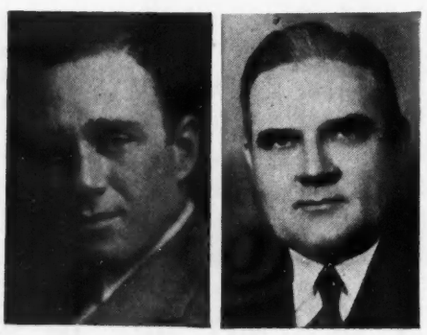
"There has been much discussion concerning the possibility of government control of the oil industry. Some view this as a dangerous probability without realizing that industry is already being rigidly controlled through the limitations imposed by our laws governing the conduct of business, including our antiquated Sherman anti-trust law enacted in 1890 and intended to serve a nation with a few large industries and a population of only 63,000,000. Since that time industrial production has increased five-fold and the population of the nation has doubled.

"With our present legal barriers it is impossible for the oil industry, through constructive cooperation, to curb or control the damaging influence of unbusinesslike competitive practices that have depressed the price structure . . . There should be established, without delay, a governmental agency with power to sanction and enforce agreements made within industrial groups. This would permit the necessary constructive regulation of trade practices and operating policies, correct existing abuses, and insure industrial stability and fair treatment for all concerned.

## Crude Oil Reserves

Henry M. Dawes, president, The Pure Oil Company: "The crude oil reserves (of the company) have been increased materially during the year (1938). The estimate made in last year's annual report that the total crude oil reserves were from 400,000,000 to 500,000,000 barrels has been further confirmed by this year's developments."

W. S. Hallanan, president, Plymouth Oil Company: "In the last year (1938), Plymouth Oil Com-



**M. C. McGEHEE, JR.**
**President, Texas Gulf Producing Company.**
**"I believe that the outlook for 1939 is encouraging."**

**GEORGE A. HILL, JR.**
**President, Houston Oil Company of Texas.**
**His company "faces the future with confidence."**

pany developed its holdings and acquired, through cash consideration, additional potential oil-producing territory which has added substantially to its crude oil reserves."

George A. Hill, Jr., president, Houston Oil Company: "Proven recoverable reserves of both oil and gas and the potential producing capacity of the oil wells are at the peak during the company's history."

William F. Humphrey, president, Tide Water Associated Oil Company: "As a result of new discoveries and extensions of previously known producing areas, the company's present reserves of crude oil are greater than they were a year ago, notwithstanding the production of 20,768,096 barrels of crude oil during 1938."

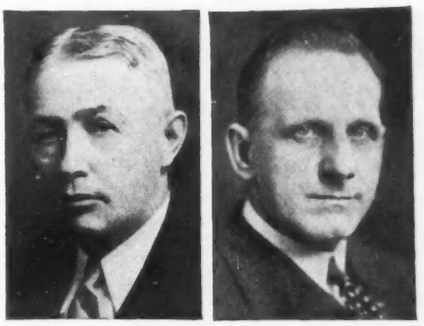
Dan Moran, president, Continental Oil Company: "The company's exploratory drilling program in 1938, together with additions resulting from discoveries made by wells drilled adjacent to the company's holdings, increased the company's estimated crude oil reserves, even after considering extractions of 20,845,683 barrels during the year."

J. R. Penn, president, Texas Pacific Coal & Oil Company: "Proven reserves were increased substantially."

J. Howard Pew, president, Sun Oil Company: "Our net reserves of oil in the ground at the (1938) year's end were conservatively calculated at 263,000,000 barrels as against 233,000,000 a year earlier. Thus it is shown that this company, like the industry as a whole, proved more 'new oil' than it took from the ground."

Frank Phillips, chairman, and K. S. Adams, president, Phillips Petroleum Company: "During the year, the company made notable additions to its raw material resources and operating facilities, the benefits from which will be realized more fully in later years. Of these additions, new underground reserves of oil and gas alone are estimated to be worth several times the 1938 net profit."

T. Rieber, chairman, and W. S. S. Rodgers, president, The Texas Corporation: "The (Texas) corporation's domestic subsidiaries were successful in their search for new reserves in new areas, particularly in Illinois, and reserves were also augmented through the discovery of crude oil in extensions of and additions to oil pools in districts previously developed. The result was that after deducting withdrawals, very substantial increases in net reserves were made during the year, bringing total reserves as of December 31, 1938, to the highest figure in the history of the corporation."



**T. RIEBER** **W. S. S. RODGERS**

**Chairman and President, The Texas Corporation.**

**"It is increasingly evident that as the petroleum industry becomes more advanced technically the necessity for research definitely increases."**

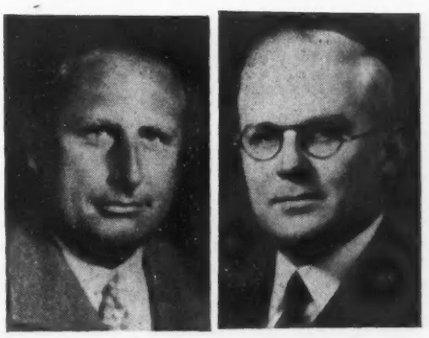
W. G. Skelly, president, Skelly Oil Company: "The company's proven underground oil reserves were increased substantially (12 percent) in 1938, due to additions during the year in excess of production."

Reese H. Taylor, president, and M. G. Kerr, comptroller, Union Oil Company of California: "As a result of the continuation of the company's program of geophysical surveys and exploratory drilling below present known zones and in new areas and the further development and extension of present producing areas, the company's estimated proven oil reserves were greater at December 31, 1938, than at the close of the previous year."

## Operating Expenses Rigid

William F. Humphrey, president, Tide Water Associated Oil Company: "While average product sales prices were less than those of the previous year, the cost of crude oil purchased for refining purposes did not decrease correspondingly, and the same is true of the cost of labor, materials, and other elements of expense entering into the cost of producing and marketing the company's products. These are conditions usually experienced by industries producing and marketing commodities, the actual or potential supply of which greatly exceeds the current demand."

J. W. Van Dyke, chairman, Atlantic Refining Company: "Despite the increase in the volume of sales as compared with 1937, gross operating income for 1938 was $5,486,000 less, while costs, operating, and general expenses showed a shrinkage of only $2,354,000 as compared with the corresponding figure for the previous year. These figures clearly indicate the rigidity of such operating expenses as pay roll, purchased materials, supplies, etc., in contrast to the instability of the price of petroleum products. The fact that 1938 earnings were but 43.4 percent of the preceding year's net income of $9,942,222 accurately reflects this situation . . . For the entire year of 1938 the weighted average of product prices was lower than for any year since 1935. Year-end prices were the lowest in nearly four years."



**REESE H. TAYLOR** **M. G. KERR**

**President and Comptroller, Union Oil Company of California.**

**"The payrolls of the company for 1938 . . . represented an average of $162 per employee per month, as compared with . . . an average of $160 for the previous year."**

### Capital Needed to Provide Jobs

J. W. Van Dyke, chairman, Atlantic Refining Company: "The $21,240,000 expended (by Atlantic) for properties, plant, and equipment during 1938 represents an average expenditure of $1797 for each man and woman on the company's pay roll. In other words, it was necessary to expend an average of $1797 for each worker on the pay roll in order to keep him equipped with the facilities required to enable him to earn a living. Here is a graphic illustration of the fact that before jobs can be had, capital must be supplied to provide the worker with the tools of his business or trade."

*Pumping Series*
*Article No. 3*

# Fishing For Facts That Will Reduce Pumping Costs

**Well studies providing large production savings by:**

**(1) Determining causes for rod breaks;**

**(2) Pointing out low volumetric efficiency;**

**(3) Assisting in the selection of the right sucker rod.**

FISHING is an old story in the oil industry. For a while it might have been classified with Mark Twain's idea of the weather—nobody did anything about it. However, that has been changed. As wells went deeper, pumping costs went up and fishing became a bigger profit-robber than ever before. Something had to be done and up to the present time the most outstanding piece of corrective work has been the use of well studies in "fishing for facts," to avoid sudden rod breaks.

The producer wanted to know why his rods were breaking and what he could do to reduce rod breaks and lower lifting costs.

Although well studies gained their biggest impetus on wells where rods were breaking, the methods used were also found effective on two other types of wells, viz., the well where no rod breaks occurred but where volumetric efficiency was low, and the new well which was about to go on the pump.

Although the dynamometer plays an important part in "fishing for facts" it is not the only phase of the well study work. In fact, using only a dynamometer to make a well study would be very much like using just a stethoscope for complete diagnosis of a sick patient. Many valuable facts are obtained from an analysis of the two ends of the broken rod, consequently tagging the sample and sending it in to the laboratory gives more facts for the well study.

### Did You Ever See a Rod Break?

For a long time no one worried about the mystery of a rod break. Then in keeping with other advancements in engineering and metallurgy, just what happens when a rod breaks is now understood and can be shown in a series of animated diagrams.

Rod breaks come from two major causes—overload and corrosion. Overload breaks are caused by using rods which cannot stand up under the pumping service to which they are subjected. Corrosion breaks come as a result of using rods which do not resist corrosion, and, consequently, as corrosion pits start, the cross-section area of the rod is reduced, and as the well pumps and repeated loads are put on the rod, it slowly breaks a little more each time as the load is now too much for what rod is left.

There are, of course, other causes of rod breaks, some of them due to faulty manufacture, such as cold shuts, improper threading, etc., and also many rod breaks are the result of bending, kinking or nicking the rods either in handling or from dropping them in the well. Rod breaks, too, may be caused by not making up the joints properly, and thus causing a pin break.

### A Rod Break in "Slow Motion"

Rod breaks usually start at some minute surface nick or corrosion pit, and result in a progressive fatigue crack. Each time the load is thrown on the rod the fatigue crack extends a little further, until not enough cross-section is left to carry the load, and the rod breaks. The accompanying progressive diagrams below show four steps in the breaking of a rod.

### Previous Record Discloses Valuable Facts

An old custom rapidly being discontinued is the disregarding of a well's previous record. Previously when a rod break occurred a splicer was used or the broken rod re-

# Extending the Advantages of

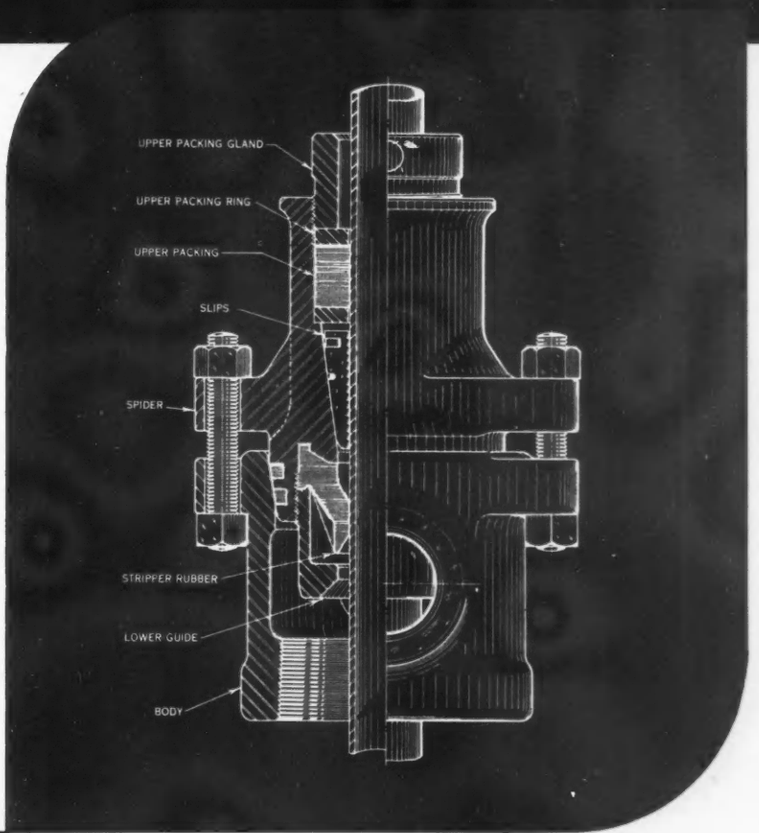
# *National Stripper Tubing Heads*

## to the Shallower Fields . . .

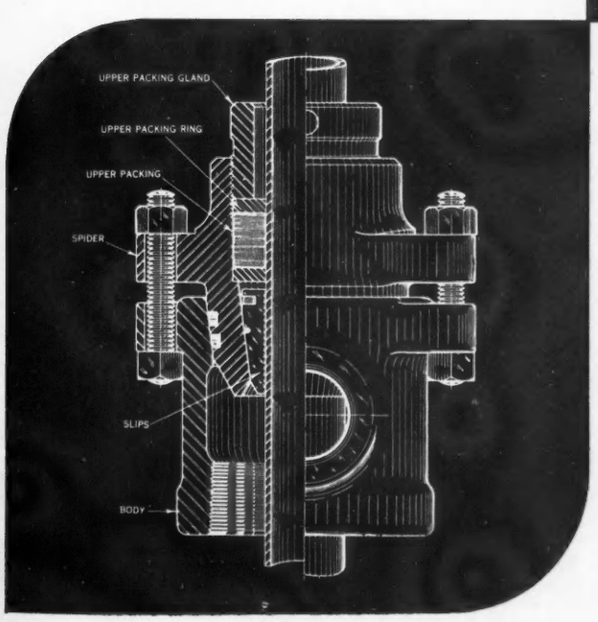
The results shown by National Stripper Type Tubing Heads for high pressure fields has resulted in a demand for the same features in a head for flowing wells in the shallower areas. The National Type HH-1D Tubing Head, with the same superior ability to strip tubing, is now available for this service.

Superior endurance of stripper rubbers is assured by the upper and lower guides which keep the couplings centered and prevent side thrust which would tend to tear the rubber. The lower guide, which prevents torn stripper rubbers on raising tubing is an exclusive National feature.

The Type HH-1 Head is identical with the Type HH-1D except there is no provision for a stripper rubber. By substituting its hanger for the Type HH-1D, when wells cease to flow, the permanent well investment can be materially lowered.




National Type HH-1D Stripper Tubing Head for flowing wells in shallow fields—500 lbs. working pressure.




National Type HH-1 Tubing Head for use on non-flowing wells in shallow fields—500 lbs. working pressure.

# NATIONAL

## THE NATIONAL SUPPLY COMPANY

EXECUTIVE OFFICES: PITTSBURGH, PA. DIVISION OFFICES: FT. WORTH, TEXAS; TULSA, OKLA.; TORRANCE, CALIF. GENERAL SALES OFFICE: TOLEDO, OHIO

**Previous records of service are a valuable source of facts**

**The accompanying two rod record sheets in their original state were on regular 8½ by 11 size paper.**

**WELL REPORT No.** _____ **DATE** _____

THE S. M. JONES COMPANY
ENGINEERING DEPARTMENT
FIELD ENGINEERING DATA

COMPANY _____

LOCATION (POOL) _____

LEASE AND WELL NO. _____

SUPERINTENDENT _____

ENGINEER _____

## 1. ROD AND WELL DATA

Type of Rods _____ Date Installed _____
Heat No. and Date of Jones Rods _____ Type of Coupling _____
Jobber _____ Location _____ Date Purchased _____
No. of feet in string: ⅝" _____ ¾" _____ ⅞" _____ 1" _____
Depth of Working Barrel _____ Total Depth of Hole _____ Prod. Formation _____
Dia. of Tub. _____ Dia. of Cas. _____ Is Hole considered straight? _____ Any wear on rods or Coup.? _____
Make, Type and Size of Pump—Full Specifications _____
Dia. of Plunger _____ Metal or Cups? _____ No. of Cups _____
If Pump is insert, is it bottom or top hold-down? _____
Is gas anchor installed? _____ Type and size _____
Is tubing anchored to casing and where? _____
Has well been previously weighed? _____ Method _____ Load _____

## 2. PUMPING CONDITIONS

Daily Prod. Bbls.: Oil _____ Water _____ Hours pumped per day _____ Days per Mo. _____
Sp. Grav. Oil _____ Length of stroke _____ Strokes per Min. (Normal) _____ App. Vol. Eff. _____
Date of last production test _____ Speed and stroke _____ Oil _____ Water _____
Allowable Prod. _____ Fluid level from bottom: Static _____ Pumping _____
Well classification—Agitator _____ Semi-agitator _____ Pumper _____
Does well pound? _____ Due to gas _____ Due to pump-off _____ or both _____
Is well making hydrogen sulphide? _____ Determined at well _____ Test of Samples _____
Do Rods or other equipment pit? _____
Does well have bad conditions such as sand, paraffin, gyp, etc.? _____
Do rods seem to drop freely? _____

## 3. SURFACE PUMPING EQUIPMENT

Type of rig front or pumping unit _____ Max. Stroke _____
Type of counterbalance _____ Under or over balanced _____ No. of weights _____
Kind of prime mover: Diesel _____ Electric _____ Gas Eng. _____ Horse Power rating _____
Is there any part of pumping unit which does not operate smoothly? _____

## 4. ROD HANDLING

Are snap wrenches used on the joints? _____ Are boxes and pins cleaned? _____
Is every joint set up when rods go back in well? _____
Type of rod elevator used? _____ Is bell nipple level on top? _____
Have rods been stretched? _____ Is rod hanger used? _____
Is there evidence of hammering on couplings? _____
Other rough treatment? (Kinked, Potentials, etc.) _____

COPYRIGHT 1938

110-12B 2M

## SERVICE RECORD DATA

Lease and Well No. _____ Well Report No. _____

| | PREVIOUS INSTALLATION | | | | | | CURRENT INSTALLATION | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Type of Rods _____ | | | | | | Type of Rods _____ | | | | | |
| | Date Installed _____ | | | | | | Date Installed _____ | | | | | |
| BREAK NO. | DAY | DATE | TYPE BREAK | DEPTH | SIZE OR MAKE | REMARKS | DAY | DATE | TYPE BREAK | DEPTH | SIZE OR MAKE | REMARKS |
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
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| 20 | | | | | | | | | | | | |

ADDITIONAL REMARKS:

COPYRIGHT 1938 · THE S. M. JONES CO

113-12-B-2M



BOX 2

# See the REED 1939 Catalog WITH PRICES IN THE COMPOSITE CATALOG

**REED ROLLER BIT CO.**
HOUSTON, TEXAS · U. S. A.

BOX 2119 **REED ROLLER BIT CO.** HOUSTON, TEX

**Valuable facts are obtained from a study of broken rods. This member of a rod crew is sawing off the tagged end of a broken rod for shipment to a laboratory for study.**

placed, the rods were put back in the hole and no effort made to find out what caused the break or to correct the trouble.

For example, in a well where rods are overloaded the breaks usually occur near the top. Thus, when a break occurs, if the rods are re-run and the condition is not corrected, other breaks will follow and each time the rods are dropped a certain amount of damage is done to the lower rods. Continual dropping soon results in kinking and often the string has to be laid down because of the frequency of breaks, but without a study of the rod breaks no reason could be assigned for breaks in the lower part of the string.

### Estimated Over 2000 Rod Crews Work Every Day

Rod breaks alone are a serious item when it is realized that over 2000 rod crews start out every morning in the various important oil fields to fish for rods. In Oklahoma City alone there are approximately 75 rod crews on duty all the time.

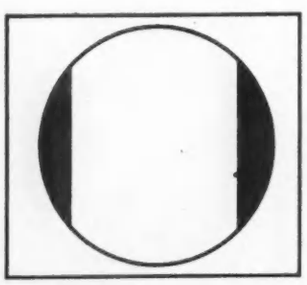
By "fishing for facts," compiling and studying all the facts—and by interpreting the facts in the light of experience under similar conditions, the well study method has made considerable progress. In one field alone a major producer estimates that well studies have saved $10,000 a month in rod breaks, down time, lost production, etc.

### A Hidden Loss

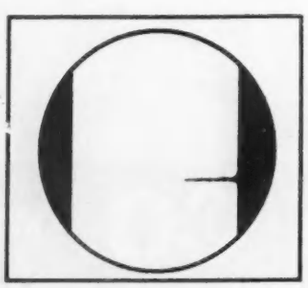
But wells where rod break is only one phase of well study work. Low volumetric efficiency often goes unnoticed until the actual production is compared with the calculated production volume.

A typical example of this situation is where the plunger travels a much shorter distance than the polished rod but the conditions are such that rods do not break. Until the volumetric efficiency is checked, this represents a hidden loss. Once the trouble is noticed, a well study will disclose the cause and a proper interpretation of the facts based on similar problems

**Progressive diagrams showing four steps in the breaking of a sucker rod**

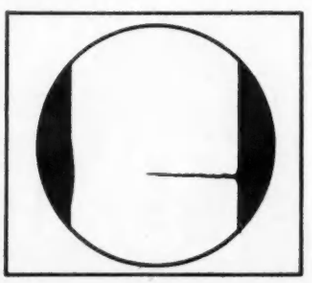


***(1)***
***Note corrosion pit or surface nick, which is usually the beginning.***

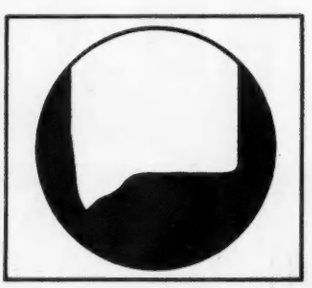


***(2)***
***The fatigue crack, which started from the corrosion pit, has extended, but the rod is still pumping.***

***(3)***
***The fatigue crack has extended through so much of the rod that it is only a matter of time until the rod breaks.***



***(4)***
***The cross-section has now been reduced so much that the rod cannot carry the load so it breaks.***



# *This New Method of* TESTING CASING

## MATCHES FIELD CONDITIONS

Casing is *under compression* in conventional hydrostatic testing. In service the casing is always *in tension.* Joints that have passed hydrostatic testing, where favored by the exaggerated sealing effect of the tapered form of the joint under compression, may develop leaks under the more severe field conditions of *tension.*

*Pittsburgh* Casing in now tested *in tension,* the one right way to prove pressure-tight joints under field conditions! The new Hydrostatic Tension Testing method is used for all current mill production of *Pittsburgh* Casing. As present pipe storage yard stocks are exhausted they will be replaced entirely with tension tested casing.

Hydrostatic tension testing is exclusively *Pittsburgh.*
Patents applied for. Write for special bulletin No. 308.

**AGAIN PITTSBURGH LEADS!**

## PITTSBURGH STEEL COMPANY

PITTSBURGH, PENNSYLVANIA

New York Cleveland Detroit Chicago Tulsa Houston Los Angeles

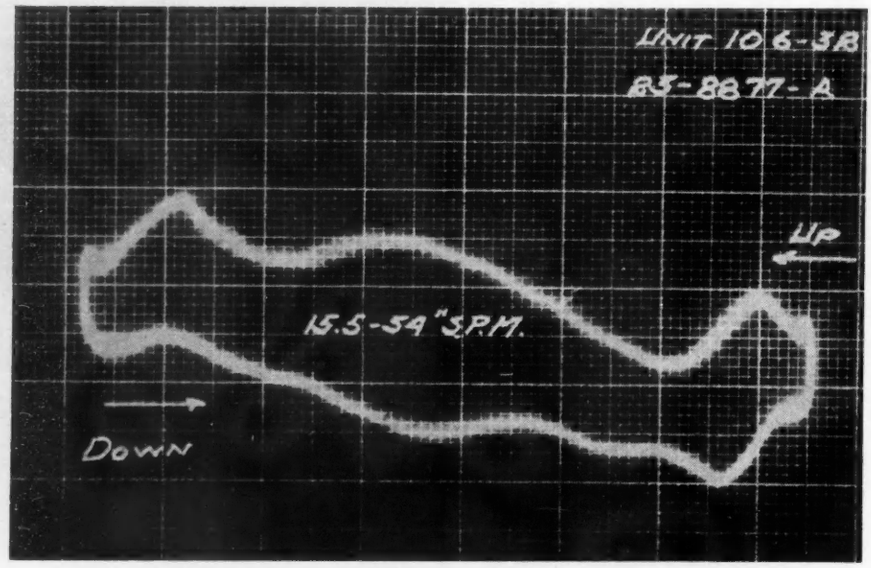
Pipe Storage Yards: Memphis, Tenn. Houston, Tex. E. San Pedro, Calif.
Export Distributors: Lucey Export Corporation, New York, N. Y., U. S. A.

**Pittsburgh Seamless**

***See the demonstration model of Hydrostatic Tension Testing in our Houston Exhibit.***

**CASING**

REGULAR A. P. I.
PITTSBURGH SPECIAL
DOUBLE SEAL—ACME THREAD




**Evidence of poor volumetric efficiency is shown by the above dynamometer card.**

will point the way to correcting the conditions.

Here is a dynamometer card which confirms the fact that the volumetric efficiency is poor and in this particular well it was due to overload because of an over-size pump.

### Selecting Rods for New Well

When a well goes on the pump for the first time, no previous record is available and no dynamometer reading can be taken. Here the problem of choosing the right sucker rod is important and here the well study must proceed along different lines but it is still a procedure of "fishing for facts."

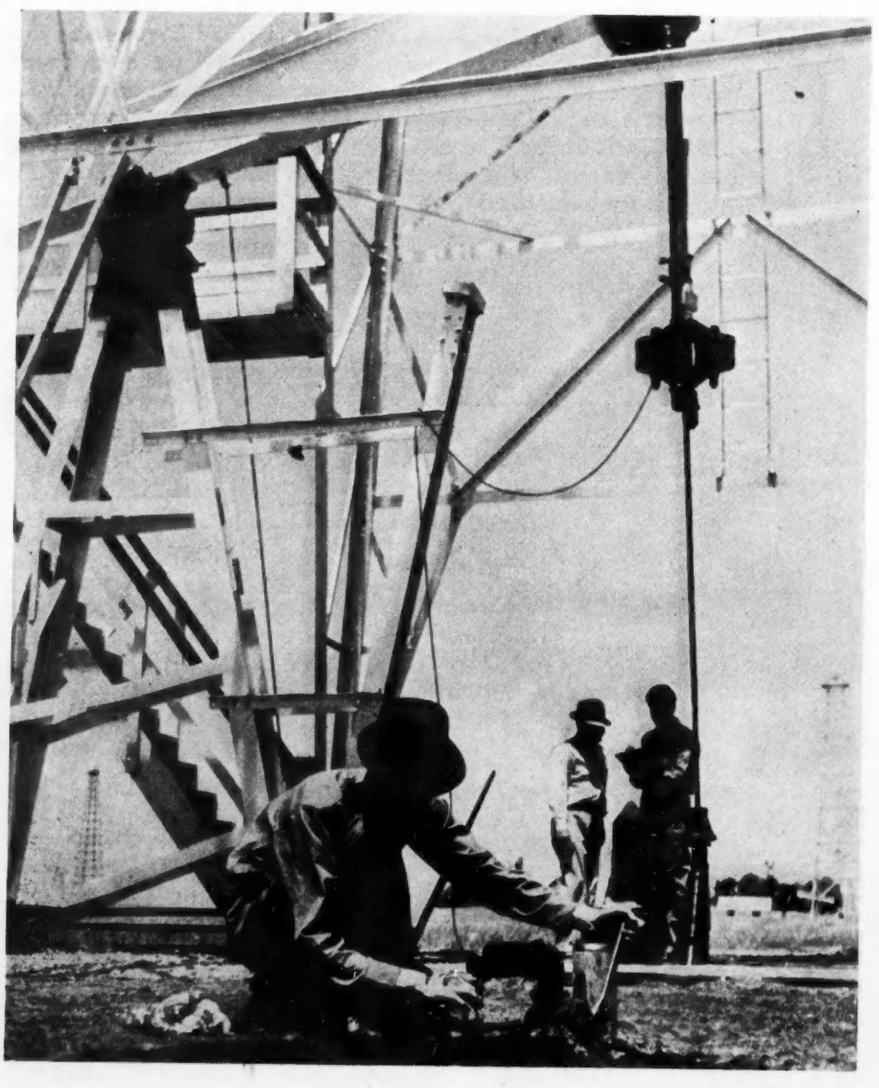
In the past, much of this selection has necessarily been based on guesses, as little information concerning the new conditions to be met was available and costly misapplication resulted.

With a sound well study procedure, rods for a new well can be selected with a high degree of accuracy. In addition to facts about the new well and the field, experience in similar wells and similar fields is essential. However, with a combination of facts and experience, the new pumping conditions and the problems to be faced in a new field can be determined in advance.

### Results Prove Value of Well Studies

In the three types of wells discussed, producers have obtained results that prove well studies as made today will continue to gain in value as their application to the problem of lowering lifting costs is better understood. The demand and appreciation of well studies is now growing rapidly and as experience in this effort has accumulated the large production savings possible are an increasing stimulant in these days of high operatings costs and comparatively low crude prices.

*Next week: "Selection of Back-Side Pumping Equipment"*



**The dynamometer plays an important part in modern well studies. Here is a dynamometer crew making a well study.**

# A Review of Illinois Basin Operating Problems

By RALPH E. DAMP
Eastern Division Production Superintendent,
The Carter Oil Company, Mattoon, Illinois

**ARESUME setting out numerous operating problems encountered in the exploitation of oil reserves in the Illinois Basin.**

**Principal reserves located in 1938 were in Fayette, Richland, Wayne, Clay and Marion Counties of Illinois; pipe-line proration was brought about by lack of market outlets.**

**Short discussion of rotary rigs being used and average drilling costs and conditions. It is pointed out that well casing trends are toward smaller size and lighter weight with welding gaining prominence.**

**The use of colloidal in cementing and mud conditioners; mud characteristics for good samples, coring, and electric well logging.**

**The general practice of acidizing limestones; some methods used to obtain greater drainage. Discussion of well completions by rotary or cable tool method, with no definite advantage for either method; cement retainers and drill-stem tests; something new in use of removable or drillable liners in completing two or more horizons in the same well.**

**Some pumping problems are set out and methods for treating emulsions; trend toward use of electrical energy as prime mover, and small individual pumping units. Salt-water disposal into subsurface formations.**

**Well spacing with pressure maintenance or modified repressuring to lower development costs and increase recoveries.**

**This paper was presented at the annual meeting of the Eastern District, American Petroleum Institute, Division of Production, Pittsburgh, Pennsylvania, April 4, 1939. The statements and opinions expressed herein are those of the author, and should not be construed as an official action or opinion of the Institute nor of this publication.**

EXPLORATION and exploitation efforts for oil and gas in the Illinois Basin continue principally by rotary methods. During the year 1938 some 2,406 wells were drilled, of which 1,910 were found to be productive. The number of wells regarded as "wildcats" were 335 in 1938, and it is expected that 1939 will see about the same rate of activity, with possibly a new high reached by late summer.

It is estimated by the American Petroleum Institute that 208,000,000 barrels reserve were discovered in 1938, located mainly in Fayette, Marion, Clay, Richland and Wayne Counties of Southern Illinois. Daily average new production has reached 150,000 barrels, as of March 1, 1939, with an estimated peak of 200,000 to 225,000 to be reached this year. A new operating problem brought on by lack of sufficient market outlets is that of pipe-line proration in a number of fields while adjustments are being made for the inclusion of Illinois crude to the refinery market formerly using Mid-Continent crude. Otherwise, a peak of over 200,000 barrels would have been reached before the end of 1938.

The newer rotary rigs, commonly used now, are of the lighter type; of course, a large number of drilling contractors continue to use former equipment revamped for the shallower drilling, and most of the older drawworks are good for 4,000 to 5,000 feet. However, the lighter rigs have a limit of about 3,000 feet, using 4½-inch drill pipe. Most rigs are powered with two gasoline, semi-Diesel, or Diesel engines ranging from 80 to 175 horsepower. Pumps range in size from 5x10-inch to 7¼x14-inch. Most contractors use 4½-inch drill pipe, but, in all probability, 3½-inch may be used if the hole size is reduced and general production practice adopts smaller than 6-inch O. D. casing. A number of wells have been drilled successfully with heavy core drills using 2⅞ inch drill pipe, and setting 4½-inch O. D. casing. Drilling costs per foot have been lowered during the past year, and range from $1.75 for 6¼-inch to $3.50 for 8¾-inch holes up to about 3,000 feet in depth, with the contractor furnishing everything except casing and cement. Also actual drilling time has been reduced materially by better mud, close attention to pump pressures, and improved rock bits. This time averages from 5 to 7 days to drill 1,600 feet, in Fayette County, using 5 to 6 bits. Other areas vary depending upon formation and depth. It has been noted that formations are apparently harder progressing into Western Kentucky and Southwestern Indiana. In the Birk City pool, an average of 12 bits are required for 1,900 feet. The trend is definitely to cut corners safely and reduce the overall per-well cost as much as possible. One item which is a decided cost is the use of derricks, usually 94-foot with 24x24-foot base. Wooden rig bottoms are used exclusively. The cost of building or erecting, with subsequent dismantling and moving to new locations, averages about $450, including necessary replacements. Here again is a problem to reduce this cost, which represents about 10 percent of the drilling cost of a 1,600-foot well. The light portable rotaries and heavy core drills, having their own portable masts or

derricks, enjoy an appreciable saving on this item, but must necessarily pull singles, thereby increasing time and decreasing the saving.

No derricks are being left over the wells, as such production is being serviced with some type of portable well servicing tractor and winch either having its own portable mast or permanent masts erected over each well. The portable units will be used later for clean-out operations.

### Casing

Casing size and weight is one of the first operating problems to be decided, and during the past year operators have shown a definite tendency to swing towards smaller and lighter strings. Here again appreciable investment savings can be made and the corners cut, so to speak. General practice is to set surface pipe from 50 to 300 feet, using either 8⅝ or 10¾-inch, in order to protect shallow fresh waters. However, where the oil string is cemented to the top, surface pipe may not be set, and this has become accepted practice in sand production along with light-weight seamless or electric-weld casing from the standpoint of initial cost and ultimate maintenance. Various operators are using different sizes and weights ranging from 4½-inch O. D. 9¾-pound to 7-inch O. D. 24-pound. The use of field-welded joints is coming into prominence due to the fact that prices for grade "B" have made such worthwhile. Welding technique has developed the practicability of such casing, and the cost of welding per foot usually amounts to the diameter in inches plus 2 cents. That is, for 6-inch O. D. the cost would be 8 cents per foot. The time for running welded casing averages about twice that for running thread and coupled casing, actual time being about 3 and 6 hours, respectively, for 1,600 feet.

Fast-setting cements are generally used and a minimum setting time of 48 hours allowed before drilling plugs. In passing through upper formations before reaching the pay horizons, numerous sands containing salt water and coal seams containing highly corrosive sulphur waters are encountered. It is deemed advisable to circulate cements around the oil string where light-weight casing is run, especially if a well life of 5 or more years is anticipated. This also protects other shallower beds penetrated that may be later productive of either gas and oil, or coal which may become workable in the future. A combination float and guide shoe, or float collar and guide shoe, is always run. The float collar is usually spaced one to two joints from bottom and aids in insuring a good cement job around the shoe. Whirler shoes are also an aid in getting a good cement job, especially where there is the possibility of water immediately above the pay; also when casing is suspended and not landed on a shoulder. In order that excessive pressures not be encountered when using light-weight pipe and circulating cement, the addition of colloidal material to the cement slurry has been found very satisfactory. Also there is usually a reduction in the amount of cement required to obtain circulation when using a lighter slurry.

Coring is a desirable practice feature in the successful completion of the first wells in a pool, after which electrical logging can be used with an appreciable saving. Good samples, of course, are highly desirable, and here drilling mud plays an especially important part. There are numerous sands and shales that may cave and cause a great deal of additional time, and possibly some difficulty in successful cementing of casing. Within the Basin area, usually there are good mud-making qualities from the surface down, but, in order to get through possible shallow-water gravels, the addition of 10 to 20 sacks of artificial mud in starting the hole may save much delay and loss of time later, and is good insurance. An average viscosity of 35 to 40 seconds and about 9½ pounds mud gives excellent results. Another factor in obtaining good mud is the size of the slush pits in relation to the size of hole and the depth to be drilled. There should be at least two baffle boards, and better three, to settle out drill cuttings. Core recoveries depend a great deal upon the condition of the mud, and the amount of coring can be reduced to a minimum with good samples allowing a geologist to pick tops within a few feet. From cores, data can be obtained regarding the formations' characteristics such as fluid content, effective porosity, and permeability that will be helpful in the future, particularly in the estimation of ultimate recoveries and advisability of secondary recovery methods, i.e. repressuring, water flooding, etc. If recoveries are not better than 75 percent, little is gained as to the characteristics of the formation cored.

Well completions by rotary or cable-tool method continues to be a highly debatable subject, but nevertheless an important one from the standpoint of good production practice. In rotary completions, cement plugs are drilled with mud and then the drilling mud washed out with clear water. The hole may then be bailed or swabbed to test; or, if shooting is required, the shot can be run immediately after washing clean with water. The size of shot usually does not exceed 3 quarts per foot of sand and averages about 1½ quarts per foot. Thorough sand tamping, depending on weight of casing, amount of room below casing seat, and size of shot, is necessary to protect the pipe and get the maximum benefit of the nitroglycerin. By careful technique we have shot 10 quarts in 9 feet of room below casing seat, using an umbrella bridge and time bomb, with no damage to casing shoe or casing. If the well is to be acidized, it should be produced sufficiently to clean the formation before injecting acid by either bailing and swabbing through casing, or washed in by swabbing through tubing. Cable tool completion, of course, precludes the possibility of formation contamination with mud or water. It is doubtful that such contamination is serious in new reservoirs. However, after reservoir pressures are dissipated, the possibility of sand penetration by water and mud is much greater. In over 300 well completions in the Loudon pool, in Fayette County, we have not been able to show that cable-tool completions result in better wells. Where there are shaly sand conditions, possibly better clean outs are obtained after shooting by cable-tool completions.

The practice of acidizing has been improved some during the past year. An experimental method is the use of a flexible tube run on the end of a "macaroni" string, through which acid is pumped. The flexible tube is directed into the well by a special tool on the end of regular tubing. There is a jetting action and the acid destroys lime, which allows the flexible tube to project out into the formation. In a test on the Lansing lime in Western Kansas, it was possible to reach 42 feet laterally. Also, by this method less acid is used and several directional acidizations can be made. Greater drainage radii

being the objective. Acidization of the McClosky and Devonian limes is a special problem, and every well requires its own analysis in order to determine the proper treatment. If water is expected at the bottom, "jelly seal" may be used, to protect this zone from the acid. Also, the flexible tube method mentioned above can be used where there is close water contact. The use of packer and retainer has proven valuable in performing acid treatment in zones that are extremely tight. The size of treatment ranges from 500 to 10,000 gallons, with the average McClosky treatment being 3,000 to 5,000 gallons either one or multi-stage. Sometimes the use of retarded acid is found advisable to secure greater penetration, as well as varying the strength or concentration of acid used. Also, the rapid placement of acid or increased injection rate may produce greater penetration.

Something new in the use of removable liners has proven very successful in producing two or more formations in the same well. Removable liners have been employed for the past two years on the West Coast, and recently in the Basin area. These liners are run in the regular string of casing and are either drilled out with a special pilot bit or with a wall scraper. Recently a metal alloy has been successfully removed with hydrochloric acid. The liners can also be left in and removed at a later date, when required, thus exposing the pay formation completely so that it can be shot and cleaned out in the same manner as if pipe had originally been set on the sand. In running removable liners, we have found that these should be placed with a shoe at the top and bottom of the liner, the shoe on the bottom of the liner being inverted, and it remains in the hole on top of the steel pipe below. This affords a much better opportunity of entering the lower formation with tools, especially for later clean-out work. We have found the best procedure is to complete the well in the lower formation first, and then plug back with sand and a sack or two of cement on top before removing the liner section. This gives a chance to definitely complete each sand or zone separately and thereby actually know the actual production from each horizon. Where it is necessary to shoot with nitroglycerin, we have established the practice of not using a removable liner where there is less than 15 feet of upper pay, because we feel this room is necessary for glycerin in order to protect the pipe, and at least 25 feet should be between the pay horizons for steel pipe where the formation between the two pay horizons is shale or may have a tendency to cave. The 25-foot section of steel pipe between the pays must be thoroughly cemented in place; and we find that co-axial spiral placed on the steel pipe as a strip or the use of steel pipe having a spiral rib fabricated in its construction is satisfactory. Otherwise there may be a tendency for the steel pipe to drop down on bottom after shooting. A number of wells have been completed successfully in the above manner in the Basin. The principal object of the removable liner is to save the expense of twin wells, or to treat a pay horizon in the same manner as a new well after the lower horizon has been fully depleted; it is then desirable to plug back and produce the upper zone, and not have to resort to ripping or gun perforation, either of which is not particularly satisfactory if nitroglycerin has to be used to obtain commercial production.

The use of drill-stem tests to explore possible pay horizons is a helpful method to determine possible production, especially if these zones have not been cored and oil stains are noted in the cuttings.

The use of electric well logging is a method of surveying wells to obtain information as to possible productivity, possibility of water, the position of relatively thin lime sections that may be used as casing seats, and other important data that may be used in plugging back or subsequent perforation of casing for production that may be cased off originally. Another sideline is the use of the "electric eye," or acid solution, for determining the exact point at which water may be encroaching. These methods reveal casing leaks, poor cement jobs around the shoe, or definite bottom-hole water, and is a great aid in determining the proper corrective procedure at a small cost rather than use the old "cut and try" method.

The use of cement retainers has sometimes proved successful in shutting off bottom-hole water, water coning, water leaks around the shoe, or leaks within the casing itself. The gun perforator has been used a great deal for casing perforation, but usually satisfactory commercial production cannot be obtained by perforation alone in sand of low permeability which requires shooting with glycerin. Shooting through casing into productive limes is very successful.

Pumping is always a problem. There are either sand conditions, shale caves, or salt-water emulsions. Emulsions must be effectively treated at a relatively low cost for efficient operation. Loose emulsions can be handled through a settling tank, if the gas is removed first so that there is a minimum of agitation. But generally there later develops paraffin difficulties and probably tighter emulsions which require the addition of chemical and heat. Thus the installation of an efficient closed treater is probably the best answer. There are a number on the market with various outstanding points. The idea of having a self-contained treater to which heat can be added when necessary is the most satisfactory way to reduce B. S. to a minimum and keep storage tanks clean, holding evaporation losses at a minimum. It is expected that oils from the Basin area will give some paraffin difficulty, especially in cold weather. If gas can be kept from the lead lines paraffin will deposit very slowly, especially if the lines are buried to reduce wide temperature changes. Alternate wetting and drying by gas in the lead lines accelerates paraffin deposition. In extremely obstinate cases lead line heaters may be necessary. Sub-surface pumping equipment, if kept in good condition, will do much to remove B. S. difficulties. In all probability common working barrels and cups will be used by most operators. However, there are a number of metal-to-metal plunger pumps now available at reasonable prices which may be used in special wells that are difficult or expensive to produce with cups. A number of the wells now are producing by the use of central power. However, in the Centralia, Salem, Dix, and Loudon pools, there is a definite trend toward individual pumping units. Electricity will undoubtedly be the source of power, and already major operators are using it almost exclusively in the above pools. Individual pumping units range from 3.5 to 7.5 horsepower gear boxes

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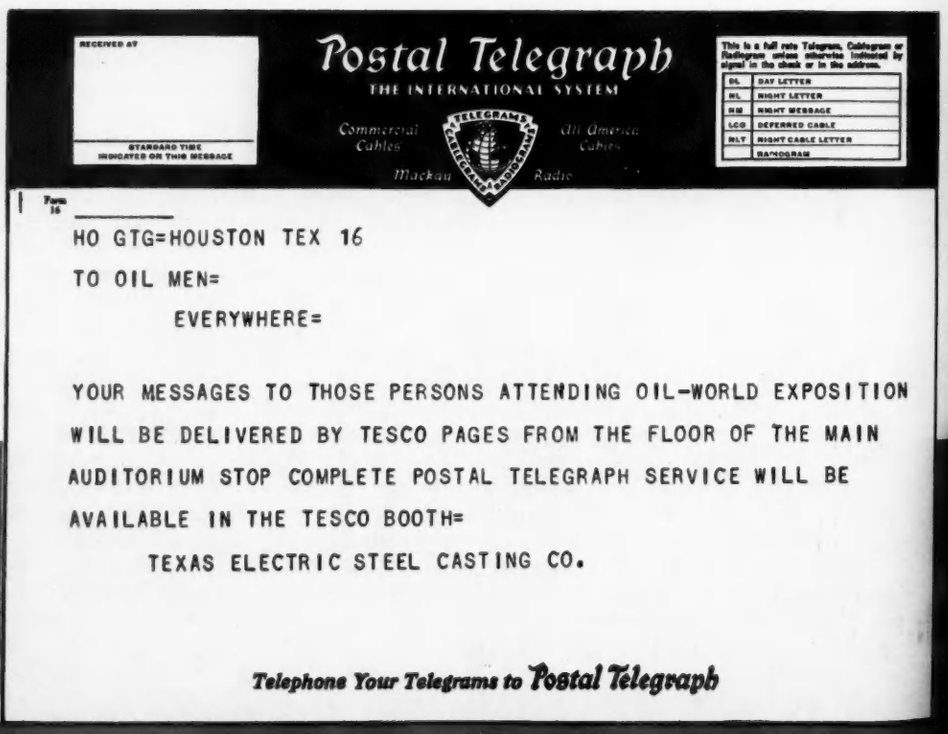
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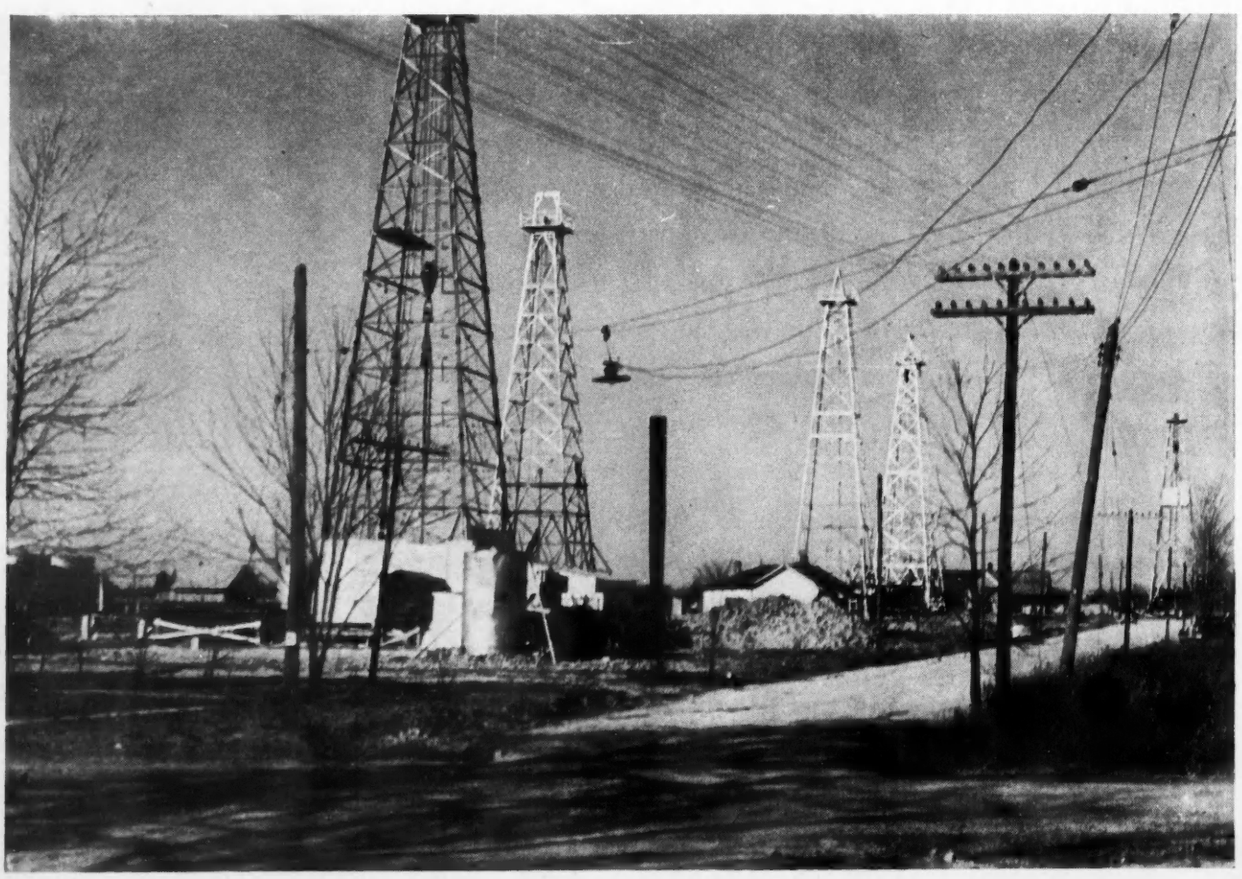
Another possibility that should be carefully explored is the use of meters for measuring the fluid produced by individual wells or leases. This will afford an opportunity for the consolidation of tank batteries at a central point, the installation of central treating plants, and subsequent salt-water disposal which will greatly aid in efficient and low-cost operation. A salt-water disposal well is being successfully used in the Dix pool of Jefferson County, Illinois. The Pottsville sands, about 150 feet in thickness, carry salt water and this well has an input of about 75 barrels per hour at 300 pounds. Subsurface disposal will undoubtedly be widely used in the future, if formations can be found to take large volumes of water for a long period of time.

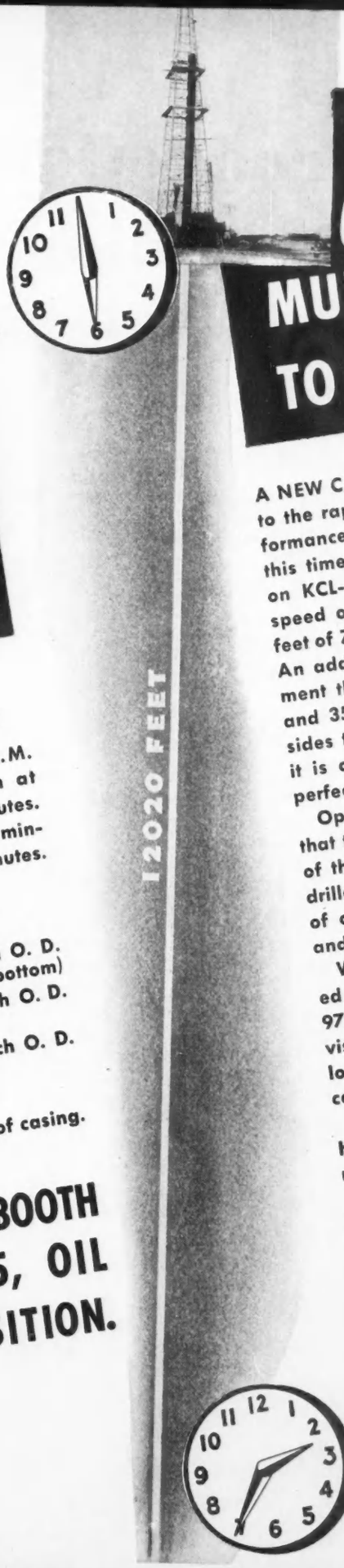
Well spacing is an extremely important problem in the efficient development of reserves. Reserves must be estimated before the proper well spacing can be determined which will yield the greatest ultimate economic recovery. Periodic reserve estimates must be made to keep abreast of competitive well spacing and its effect on the ultimate recoveries. Pressure maintenance or modified repressuring materially increases recoverable reserves, and such methods tend toward wider well spacing. Restricted withdrawal will insure a more uniform production rate over a longer period, which in turn tends to stabilize production volumes, smoothing out periods of peak production and possible low market values, and thus making for steadier income return on capital investments. In general, production experience gained from other pools proves conclusively that curtailed production early in the life of the field yields greater ultimate recoveries in comparison to capacity production with resultant dissipation of reservoir energy destroying the highly fluid state of the virgin oil.

Pressure maintenance, or modified repressuring, is being practiced in two Basin pools at present; by The Carter Oil Company in the Loudon pool of Fayette County, and by The Texas Company in the Salem pool of Marion County, Illinois. Original reservoir pressure in the Loudon pool was about 650 pounds, and at present about 580 pounds (in the north end where repressuring is being applied). Gas returns to the sands at 650 to 750 pounds and in sufficient quantity to maintain a low rate of decline in reservoir pressure. Gas injection will be slow in order not to create gas caps. Input wells are located in the center of eight producing wells in each quarter section, and the adjoining quarter sections.

These are only some of the problems encountered in the Basin area, and are pointed out to install ideas and encourage discussion and application which will be of interest to all producers, thereby benefiting the industry as a whole.



**The spacing problem in Illinois is complicated by frequent occurence of townsites throughout the producing area. Typical of such situations is the above view showing six wells in an area less than ten acres.**

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# Distillate Production Brings Gasoline Recycling Plants To South Texas

**Thirty fields in the district considered as possible prospects for condensate extraction-recycling plants.**

By EARL S. POST
Staff Writer

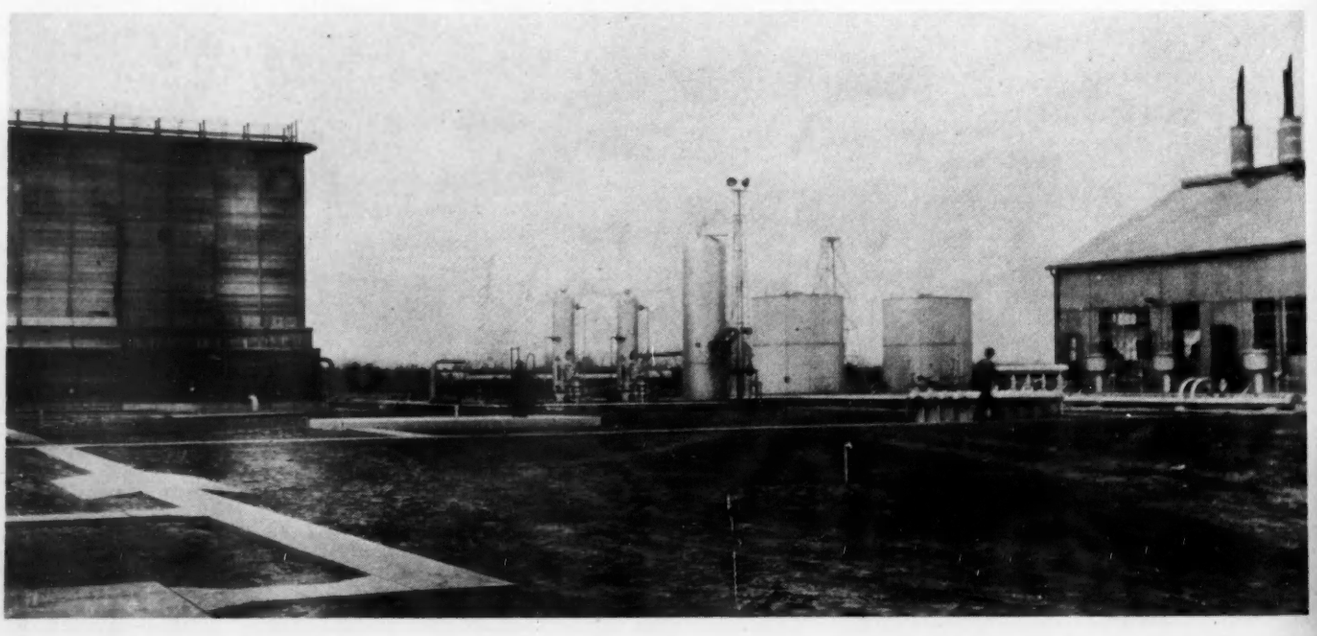
DEVELOPMENT of condensate production along the South Texas Gulf Coast is providing an aggressive natural gasoline plant and recycling unit construction program. The first two major units were placed in operation at the beginning of the year and several new plants are contemplated for 1939.

This program is the definite follow-up to several economic events, as well as the designing of successful recycling units for deep sands. These reasons are generally summed up as follows:

(1) Condensate producers are high gas/oil ratio propositions and under the present Texas Railroad Commission rulings would be shut in for gas wastage unless a market has been provided for the residue gas. This virtually eliminates the production of high-gravity distillate, or gasoline from these sands through regular separator methods unless the area has the good fortune of being close to and connected with a natural gasoline plant, or sufficient market is provided through sales of residue gas for nearby drilling rigs.

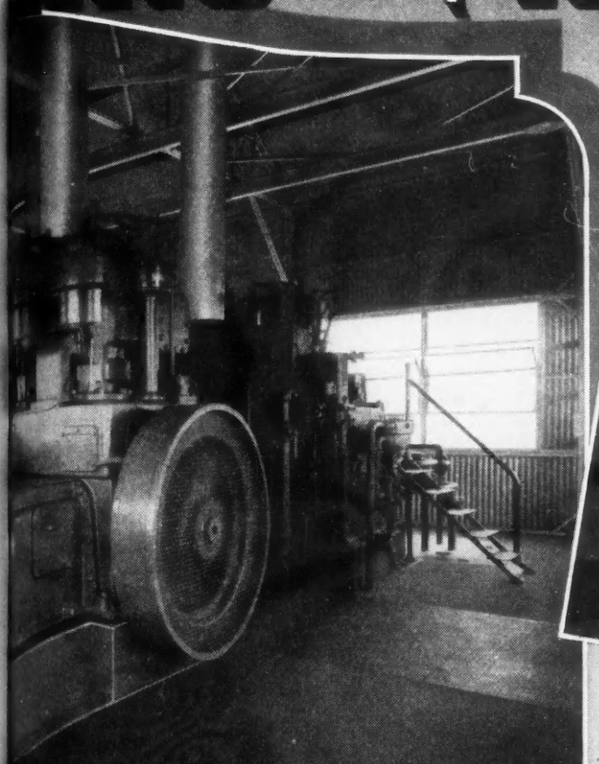
(2) Most distillate or condensate sands are low-recovery producers and are found at extreme depths, making production on a regular basis generally economically unsound. Through recycling, pressure is maintained and greater recovery is possible.

(3) Higher allowables are avail-



**Corpus Christi Corporation's recycling plant in the Stratton field, Nueces County. Gas is separated at 1200 pounds and compressed to 3000 pounds for injection into the producing sand.**

# LING *and* REPRESSURING



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# RK

able for wells produced by this method. In most cases, 25 percent of the open flow capacity of a gas/oil producer is allowed, provided the gas is returned to the formation, or is sold in a legitimate market. On the basis of a crude allowable, wells may be restricted to 50 barrels per day, but as condensate producers, their production may be increased to several hundred barrels per day.

(4) Wider spacing is possible. This is the opinion of engineers on several projects, who in designing the repressuring program point out that drainage from several hundred acres is possible, where maximum recovery under ordinary production methods would be restricted to a limited sector.

(5) Numerous producing areas heretofore considered unfavorable for production and classified as purely gas reserves now become valuable. One particular instance is a large individual fee ownership upon which two wells proved several high gas, low oil producing zones several years ago. The block was dropped, being determined solely as a gas proposition. Further exploration by another company, plus the construction of a large gasoline and recycling unit has made this one of the key fields of the lower Gulf Coastal trend.

(6) High prices received for fluid and immediate demand for gasoline and distillate makes this an attractive proposition.

As a result of the above, it can be seen that much attention will be paid in the future to these reserves, especially those held in large units where operation of the plants is simplified. Where leases are well broken up and fee ownership is divided, complications arise in the division of royalties and damaging or aiding effects of the repressuring.

A survey of South Texas at the first of the year showed that there were 30 fields along the lower Gulf Coastal trend producing distillate or capable of producing distillate or condensate from one or more sands, and also considered likely prospects for recycling units. A number of other crude producing areas in this sector have residue gas from wells apparently adapted

**TABLE 1**

**Survey of Distillate Areas in South Texas January 1, 1939**

| COUNTY | Field-Prospect | Type Production | No. Sands Distillate | Range Depths Dist. Sands | Plants Operating or Proposed | Major Leaseholders |
|---|---|---|---|---|---|---|
| **Aransas** | *Lamar | Gas/Dist | 2 | 8000–8600 | None | Barnsdall Oil Company. |
| | †McCampbell | Crude/Dist | 2 | 6800–7100 | 1 | Atlantic, etc. |
| **Bee** | Beeville | Gas/Dist | 1 | 5800 | None | Houston, Magnolia, etc. |
| | Holzmark | Gas | 1 | 3600 | None | Several independents. |
| **Calhoun** | †Heyser | Gas/Crude | ... | ..... | 1 | Humble, Plymouth, Gulf, etc. |
| **Duval** | †Benavides group | Gas/Crude | ... | ..... | 1 | Hiawatha, Arkansas, Standard of Kansas, Humble, etc. |
| | †Thomas Lockhart | Gas/Crude | ... | ..... | None | Lockhart Brothers and E. R. Thomas Estate. |
| **Goliad** | Slick | Gas/Crude | ... | ..... | None | Dirks Brothers, The Whitex Company. |
| **Hidalgo** | *La Blanca | Gas/Dist | 3 | 6650–8000 | None | Atlantic, Phillips, Quintana, Davenport, etc. |
| | *Mestina | Gas/Dist | 2 | 6600–8000 | None | Gulf States, Union Sulphur, etc. |
| | *McAllen | Gas/Dist | 3 | 5900–7200 | None | Phillips, R. E. Harding. |
| | *Mercedes | Gas/Dist | 8 | 7400–9000 | None | Union Sulphur Co. |
| | *Samfordyce | Crude/Dist | 1 | 5850 | None | Phillips, in distillate area. |
| | *Weslaco | Gas/Dist | 8 | 6800–9000 | None | Atlantic. |
| **Jackson** | *Francitas | Crude/Dist | 2 | 7200–7700 | None | Texas, Skelly, Ohio, etc. |
| | *Edna | Gas/Dist | 3 | 4600–5000 | None | Chicago Gulf, Steinberger Oil Corp. |
| **Jim Wells** | *, †Alice | Crude/Dist | 4 | 4500–5400 | None | H. H. Howell, Southern Minerals, R. B. Bryant, etc. |
| | *E. Prement | Crude/Dist | 4 | 5300–6650 | None | Magnolia, Transwestern, etc. |
| | *E. La Gloria | Crude/Dist | 2 | 7300–7550 | None | Shell. |
| | *Bandera | Gas/Dist | 1 | 6400 | None | Magnolia. |
| | *W. La Gloria | Gas/Dist | 6 | 5200–6200 | None | Magnolia. |
| **Kleberg** | *Bird Islands | Gas/Dist | 1 | 7200–7300 | None | Pure, Superior, etc. |
| **Live Oak** | †Lucas | Gas/Crude | ... | ..... | None | Houston, etc. |
| | †Dinere | Gas/Crude | ... | ..... | None | Houston, Smith & Storey, etc. |
| **Nueces** | *Agua Dulce | Gas/Dist | 6 | 4600–6300 | 3 | Union Prod., Lockhart, Shelton, etc. |
| | *Bentonville | Gas/Crude | 1 | 4000 | None | La Jita, Stanolind, Lucey, etc. |
| | *, †Clara Driscoll | Crude/Dist | 4 | 5100–5400 | None | Wellington, Pan American, Reed, etc. |
| | †Luby | Gas/Crude | ... | ..... | 1 | Stanolind, Seaboard, Shell, etc. |
| | *London | Crude/Dist | 2 | 4750–4900 | None | Wellington, Atlantic, etc. |
| | *Riverside | Gas | ... | ..... | None | Stanolind, Seaboard, Shell, etc. |
| | †Flower Bluff | Crude | ... | ..... | 1 | Humble, Barnsdall. |
| | *, †Saxet | Gas/Dist./Crude | 12 | 4800–10000 | 1 | Southern Minerals, Heep, Richardson, Texon, etc. |
| | *Stratton | Gas/Dist | 5 | 4700–6600 | 1 | Corpus Christi Corporation. |
| | *S. Agua Dulce | Gas/Dist | 3 | 5800–6800 | None | Texon, Lockhart, etc. |
| | *N. Agua Dulce | Gas/Dist | 1 | 4700 | None | Union Producing, etc. |
| **Refugio** | *, †La Rosa | Crude/Dist | 1 | 5400 | None | Geophysical Service, Inc., etc. |
| | *, †Refugio | Crude/Dist | 9 | 5100–7200 | 2 | Republic Nat. Gas, Union, Houston. |
| | *, †Tom O'Connor-Greta | Crude/Dist | 3 | 5100–5600 | None | Quintana, Humble Copano. |
| **San Patricio** | †Sinton | Gas/Crude | ... | ..... | None | Hewitt & Doughtery, Plymouth, etc. |
| | †Plymouth | Gas/Crude | ... | ..... | 1 | Plymouth, Heep, Magnolia, etc. |
| | †E. White Point | Crude | ... | ..... | None | Plymouth, Texas, Shell, etc. |
| **Starr** | *Rincon | Gas/Dist | 1 | 4700 | None | Transwestern Oil Company. |
| | †Sun | Gas/Crude | ... | ..... | None | Sun, Magnolia, etc. |
| **Victoria** | *Placedo | Crude/Dist | 2 | 5300–5500 | None | Barnsdall, Sun Magnolia, etc. |
| | †Keeran | Crude/Dist | 3 | 5100–7000 | None | Union Oil Co., Gulf, Barnsdall. |
| | †E. Placedo | Gas/Crude | ... | ..... | None | Stanolind. |
| **Willacy** | *La Sal Vieja | Gas/Dist | 1 | 7500 | None | Shell. |

* Fields considered adaptable to recycling. † Crude producing areas in which gas may be processed.

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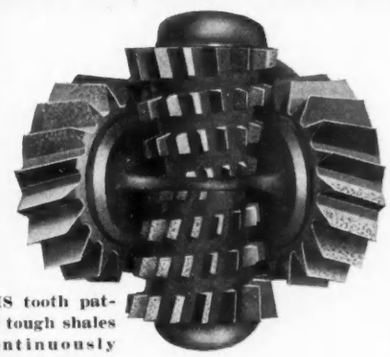

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**TABLE 2**

**Natural Gasoline Plants Operating in South Texas January 1, 1939**

| COMPANY AND LOCATION | Type | Capacity, Cubic Feet Gas Pressure | Gallons |
|---|---|---|---|
| Corpus Christi Corporation, Stratton | High-pressure recycling | 50,000,000 | 50,000 |
| Clymore Company, Refugio | Absorption | 30,000,000 | 25,000 |
| Duval Gasoline Company, Benavides | Refrigeration process | 1,250,000 | 2,000 |
| Humble Oil & Refining Company, Heyser | Absorption | 25,000,000 | 50,000 |
| Humble Oil & Refining Company, Flour Bluff | Absorption | 15,000,000 | 15,000 |
| Manhattan Gas Company, Sinton | Low-pressure—absorption | 20,000,000 | 20,000 |
| Natural Gas Corporation, Aransas Pass | Low-pressure—absorption | 90,000,000 | 40,000 |
| Process Oil Company, Agua Dulce | High-pressure recycling | 15,000,000 | 4,200 |
| Southern Minerals Corporation, Corpus Christi | Low-pressure absorption | 75,000,000 | 40,000 |
| United Gas Pipe Line Company, Refugio | Absorption pressure | 50,000,000 | 25,000 |
| United Gas Pipe Line Company, Agua Dulce | Absorption and cracking | 50,000,000 | 35,000 |
| J. H. Webb, Chitim | Drip separator | 2,500,000 | 700 |
| Agua Dulce Gasoline Company, Agua Dulce | High-pressure recycling | 60,000,000 | 60,000 |

to processing through one of several types of gasoline units. At the beginning of the year, 13 plants were operating along the lower Gulf Coast, only 3 of them being recycling units.

Prior to 1934, there were 2 plants in the territory. United Gas Company had constructed and is still operating a natural gasoline plant in the Refugio field. This is an absorption unit constructed to handle a maximum of 50,000,000 cubic feet of gas daily. Its average run has been 47,000,000 cubic feet per day with a recovery of about 2000 gallons of gasoline. The gasoline content of the gas at Refugio is from .425 to .50 gallons per 1000 cubic feet. The gas is being taken from the gas separators and residue gas is run to United Gas Pipe Line Company's trunk line for commercial consumption.

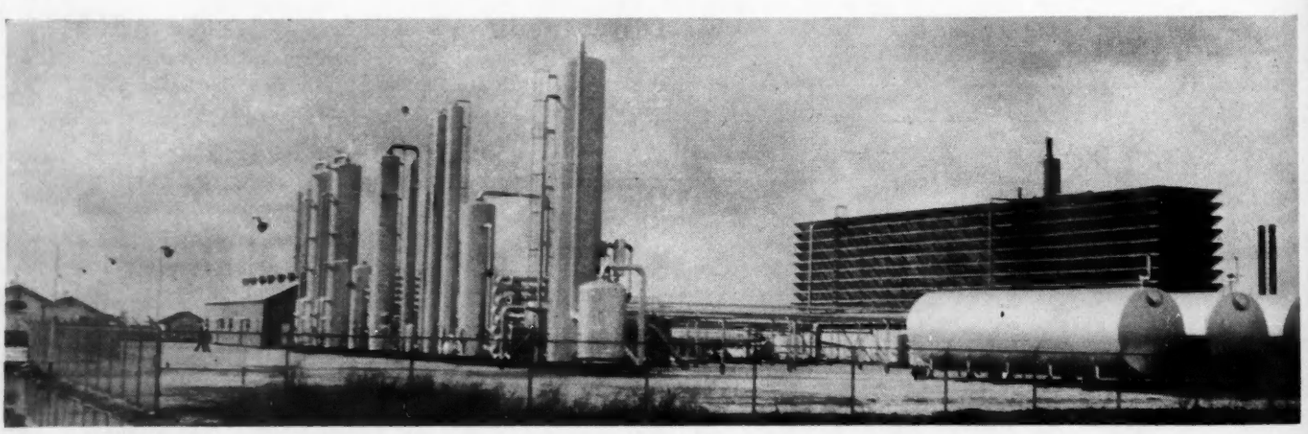
J. H. Webb was one of the first operators in the area, constructing a gas treating and trip separator plant in the Chiltim field of Maverick County, where 2,200,000 cubic feet of gas daily provides about 700 gallons of gasoline. This is the only plant off the Gulf Coast trend, the production coming from the 5600-foot Glenrose formation. Wellington Oil Company and Texas Gas Utilities Company control these reserves, the latter running the gas through its pipe line system.

Early in 1934, Clymore Production Company erected and placed into operation a combination absorption and refining unit built to handle a maximum of 45,000,000 cubic feet of gas per day, plus a number of high gravity, excessive gas/oil ratio producers. The gas from this field averages .03 to .04 gallons per 1000 cubic feet. The oil produced is 55 gravity and runs about 80 percent gasoline of from 68 to 70° A.P.I. It was operated for some time, running 17,000 gallons of gasoline from the gas runs and about 14,000 gallons of gasoline and naphtha from the oil runs. It operated for only four months during 1934, then shut down. Later it was acquired by United Gas System and after further expansion and reworking was placed into operation. It still is producing, residue gas being run through the company's trunk line.

A number of units were constructed to handle residue gas from crude oil producers, the gas being taken from the separators and handled through low-pressure absorption or similar type plants. These units, likewise, have become popular in oil producing areas.

Parker, Foran, Knode & Boatwright, engineers of Corpus Christi, entered the Agua Dulce field in 1937 with a high-pressure separator unit, taking gas from one well and recycling it through another. The plant, operated under the name of Process Oil Company, was constructed for experimental purposes. It takes the fluid and gas from the 4800-foot sand through high-pressure separators and back into the sand through a second well with only one stage of pressure step-up. Using several million cubic feet of gas per day the plant produces 4200 gallons of high-gravity gasoline. This sand is capable of producing considerable oil through regular separator methods.

The above company has applied to the Texas Railroad Commission for permission to withdraw fluid and gas from sands deeper than the 4800-foot sand, process the production, then return the gas to the formation. This work is being car-



**Southern Minerals Corporation plant in the Saxet field, Nueces County, is a low-pressure absorption gasoline system which has been recently enlarged to process 75,000,000 cubic feet of gas a day.**

***There is no guesswork*** **or haphazard methods in any phase of the development of Tretolite formulas for the treatment of crude oil to pipe line requirements. Able, experienced technicians, working in modern fully-equipped laboratories assure you of an intelligent and exact handling of your particular oil treating problems. Avail yourself of this dependable service by calling the local Tretolite representative.**

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ried on in the southern portion of the Agua field where the company has the Ingram tract under lease.

Agua Dulce Gasoline Company's plant at Agua Dulce and Corpus Christi Corporation's unit at Stratton field, recently have been placed into operation.

Corpus Christi Corporation has its plant near the center of a producing block of approximately 8000 acres. The producing wells range from 4800 to 6400 feet, activities being directed to the lower zone. All of the wells are tied into flow lines to the plant, some being 8300 feet away. The oil is separated at 1200 pounds pressure direct from the well. The gas, after having the gasoline removed, is compressed through four 600-horsepower compressors in a single operation, being returned to the formation in one input well at a pressure of 3000 pounds. Seven wells provide the production and an eighth is used as input. The plant has a capacity of 50,000,000 cubic feet and produces nearly 60,000 gallons of fluid per day.

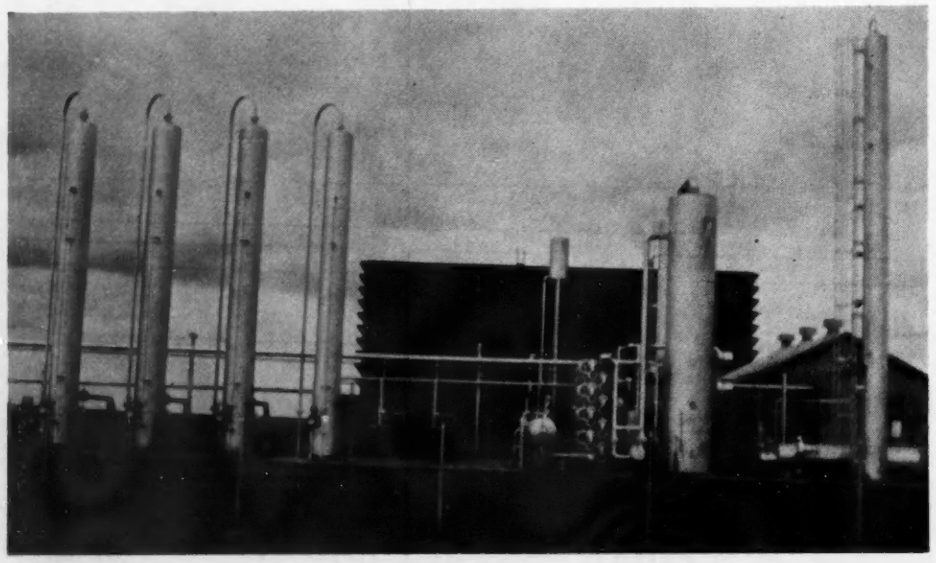
Designed to repressure sands at 4600 to 4800 feet, Agua Dulce Gasoline Company's unit in the Agua Dulce field, built by J. Wood Glass and Henderson Company interests, yields 60,000 gallons of fluid per day. It separates oil under a direct pressure of 1200 pounds, the residue gas being restored to the formation under 1900 pounds pressure. Twelve output and four input wells supply the plant.

The results of these plants will have an important bearing on the future of this type of development. Maintenance of the original conditions in the producing sand, which is part of the plans of these installations, is of economic importance, especially in those areas similar to Agua Dulce and Stratton where the production is a clear distillate or water-white condensate. This fluid is believed to exist largely, at the increased pressure and temperature in the formation, in a dense cloud of vapor or gas. As the pressure is decreased, condensation often results and much fluid apparently is never to be recovered in the interstices of the porous rock or sand. However, by the injection of the gas that is produced with the oil or distillate this loss in the sand may be prevented and the decline in pressure will be slight. This would mean that the greater part of the vapor would ultimately be recovered.

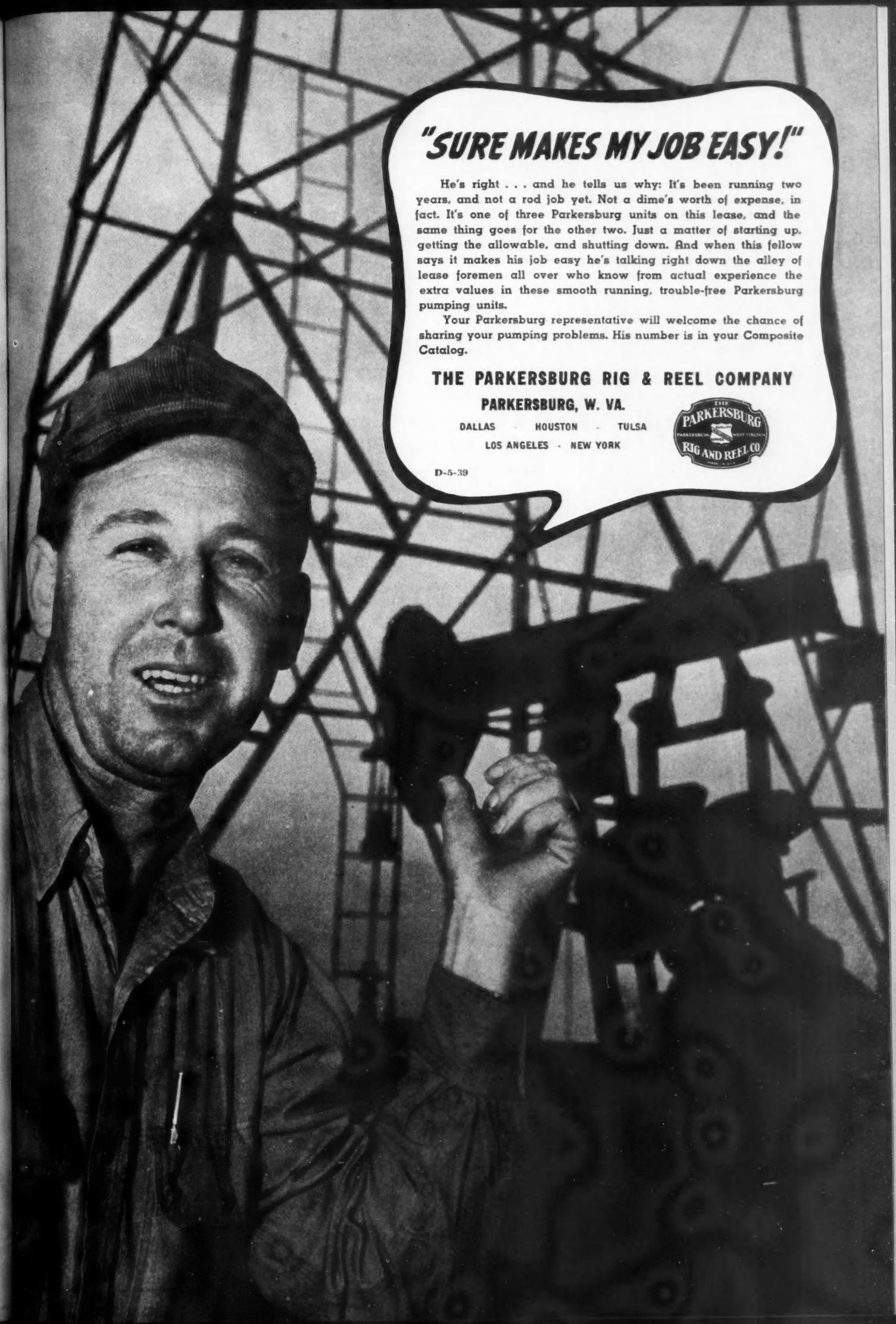
Along the above lines, evidence was presented at a recent litigation between Southern Minerals Corporation and Jay Simmons et al concerning the condition of distillate in the formation. Fluid produced from the 5700-foot sand in the Saxet field, together with water and gas, were experimented with by Dr. George G. Brown, professor of chemical engineering for the University of Michigan, in his laboratory at Ann Arbor. These samples were mixed in their exact ratios as found at the separator at the well site. When subjected to a pressure of 2850 pounds and 168° F., considered the same conditions as in the well, the liquids were transformed into gas. As the pressures were lowered, the gas commenced to condense, turning into fluid when the pressure reached 610 pounds and temperature 70° F.

When a definite decision is made concerning exactly what is a condensate well, rules governing their operation can be set up. The Texas Railroad Commission took definite steps in this direction early last year by making a survey of producers apparently in this classification. On October 15, 1938, a hearing was called, its title being the classification of wells producing high-gravity, high-volatile liquids at high gas-liquid ratios, the methods of producing such wells in order to obtain the greatest ultimate yield from reservoirs on which such wells are located and the utilization and disposition of the gas produced from such wells. The first hearing concerning the classification of these wells was held February 23, 1938. This was followed by several hearings which ultimately resulted in a survey of all producing areas in Texas. In making this survey, it was found that 205 wells were in the probable condensate producing classification. For the basis of development of this list, wells producing fluid of at least 46° A.P.I. under a minimum ratio of 10,000 cubic feet per barrel were included. Since that survey, there have been a number of completions of wells within this classification.

The rapid expansion of the distillate or condensate type of production is to be one of the most outstanding developments along the South Texas Gulf Coast. Due to the apparent extensiveness of the reserves and close proximity to deep water outlet, there is little doubt but what it will be a future factor from both a producing and refining point of view in South Texas.



**Agua Dulce Gasoline Company plant in the Agua Dulce field, Nueces County, Texas. The absorption process is operated at 1200 pounds for removing gasoline and the plant produces kerosene and gas oil in special apparatus. Gas is returned to the sand at 1900 pounds.**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Edited by
WM. V. GROSS, Associate Editor

# Peruvian Developments

**Blue Goose moves mile northwest for second test on Pachitea concession . . . Moran describes structure as 16 miles long and 7 miles wide . . . Need pipe line**

WITH the major portion of its duty completed . . . that of discovering a new high gravity oil field east of the Andes mountains on a 90,000-acre concession granted it by the government of Peru several years ago, Compania de Petrolio Ganzo Azul, better known as Blue Goose Oil Company, is launching a campaign within 30 days to determine the productive limits of the field.

The concession, sometimes referred to as the Pachitea concession, due to its proximity to the confluence of the Pachitea and Ucayuli rivers, is in the Department of Loreto, about three hours by launch from Masisea on the latter stream. It is separated from the producing fields on the coast of western Peru by the high Andes mountains, but in structure the area is more closely related to Colombia and Venezuela.

Enroute the site of Agua Caliente 1-A, which was successfully brought in on February 26 for an initial yield of 750 barrels of clean 45 gravity oil per day from 1174 feet, is a new crew. The crew left Lima only a few days ago, and by the time this is published, it will be engaged in transporting a steel derrick and all the necessary equipment to a new location selected by Robert B. Moran, consulting geologist for Blue Goose Oil Company, to where a third well will be drilled. The crew that handled drilling operations for the first and second wells will be relieved (American members of the crew returned to California a short time ago). Five new American drillers flew by Pan American Airways, a five-day flight, to Peru.

Robert Moran first saw the closed structure from an airplane some 10 years ago while flying from San Ramon to Iquitos at the headwaters of the Amazon River. He was responsible for aerial mapping of the jungle and preparation of geological data that ultimately proved to be correct. A few years later, Moran was joined by Douglas Fyfe, at present in charge of the work, and Bart M. Gillespie, who were

**Campsite of Blue Goose Oil Company in eastern Peru on the Pachitea concession, where some exceedingly tough limestone was drilled before completion of the discovery well.**

**ROBERT B. MORAN**

**Robert B. Moran, geologist, geologized and pioneered the Peruvian concession where the Blue Goose Oil Company discovered a new field in February, 1939. Moran graduated from Stanford in 1907, having majored in geology. He was first employed as geologist for the Southern Pacific Railroad and was later employed by the Associated Oil Company and the Standard Oil Company. Since then he has been on his own as a consulting geologist for many years. A native of Kentucky, he came to California in his youth.**

instrumental in laying plans for getting equipment into the interior of Peru.

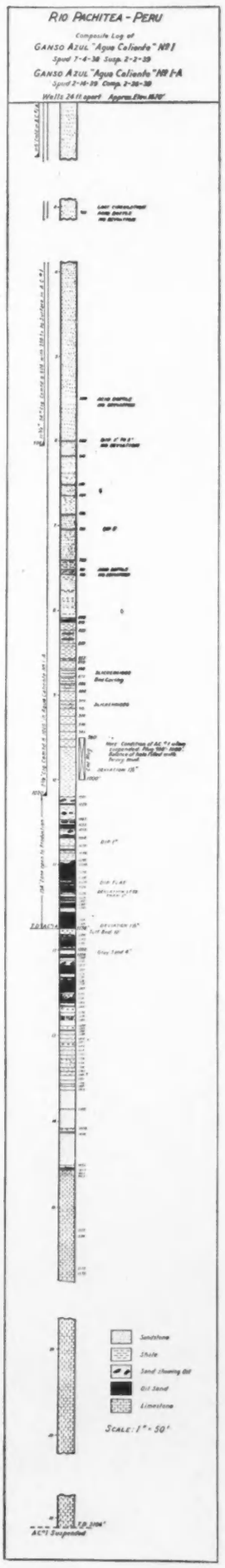
Moran said that approximately 50,000 acres of the concession are within the lowest closing contour and that the structure is about 16 miles long and 7 miles wide.

Geological work on the properties leased from the Peruvian government was done as early as 1930, this work continuing through 1931 and 1932 before other preliminary work, such as laying out a camp site and construction of roads for hauling material, was done. Fyfe, Moran and Glen M. Earl, all of Los Angeles, spent a great part of the time in aerial geology and in astronomical observations to define the boundaries of the concession. Out of 300,000 acres once considered prospective oil land a block of 90,000 acres was selected.

It will take at least a month for the crew to get the derrick for Agua Caliente 1-A dismantled and transported through the jungle growth.

The third well will go down one mile northwest of the second well, which proved to be highly productive, but which has since been shut in mainly because of lack of storage.

However, all that is needed for further development is a 25-mile pipe line. This line will be laid from the well to Port Pucalpa on the Rio Ucayali River.




**W. C. McDUFFIE**

**William C. McDuffie, former receiver for the Richfield Oil Company, is head of the Ganzo Azul Compania de Petrolio or Blue Goose Oil Company which discovered a new high gravity oil field in central Peru last February. McDuffie's associates are well-known California oil men. The drilling of the Blue Goose Oil Company's discovery well was handled by the Drilling & Exploration Company headed by J. E. Brantly.**

It will run through what is described as upland territory, free of swamps.

Rio Ucayali River is about the same size as the Ohio River, but deep enough to accommodate barges to handle oil. The barges, after loading, would be floated 600 miles down stream to the Amazon.

Agua Caliente 1 was spudded July 4, 1938, and after penetrating oil sand, shales and sands to 3104 feet, was suspended on February 2, 1939. At first, drilling progress was fairly rapid considering almost the entire distance was cored to enable geologists to give the formation a thorough study. A few oil showings were penetrated below 800 feet, but they were insufficient to justify production tests. Not until the drill reached a depth below 1000 feet did the formation begin to show anything of promise. At 1095 feet, solid oil sand was cored and this was fairly continuous down to 1256 feet, where showings practically disappeared in favor of sandstone that continued to about 1450 feet, where the drill encountered a tough limestone that slowed up drilling progress to a point where little if any progress was made in a 24-hour period. Something over 1600 feet of limestone was cored.

Incidentally, this thick section of limestone had been expected at a much greater depth, based on conclusions previously reached by geologists.

Convinced that Agua Caliente 1 wildcat was nothing more than an experimental hole, Blue Goose Oil Company decided to drill a new well. The derrick

# Peru or California . . .

## are Depended Upon to Mak

**For pushing the oil horizons ever outward, Hughes Tool Company pays tribute to the Drilling and Exploration Co., Inc., in their present program in Peru.**

**J. E. Brantly, president of the company, in bringing in this new oil field, again demonstrated that modern drilling practices plus today's finer tools and equipment can overcome the most difficult drilling problems.**

**The following statement from Mr. Brantly emphasizes the part Hughes "Tailor-Made" Rock Bits are playing in the drilling industry throughout the world.**

> *"We selected Hughes Rock Bits for this job because their bearings are better, they are more substantial, and on the whole they are a stronger bit. We always use Hughes Bits when there is hard going ahead. I drilled 1,700 feet of the toughest limestone I have ever drilled and Hughes Bits performed perfectly."*

**Yes—be it Peru or California, you can depend on Hughes Rock Bits—They are built to "take it."**

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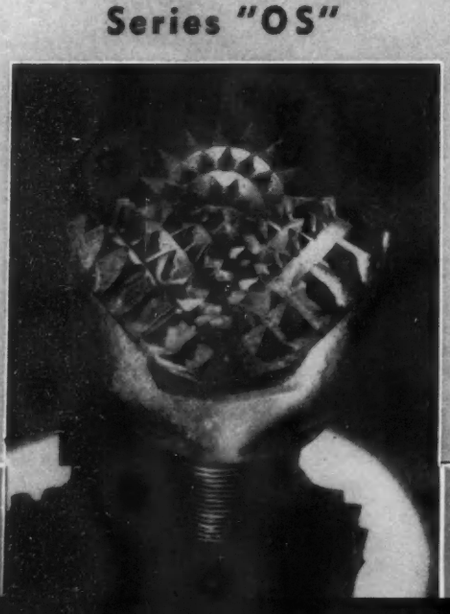
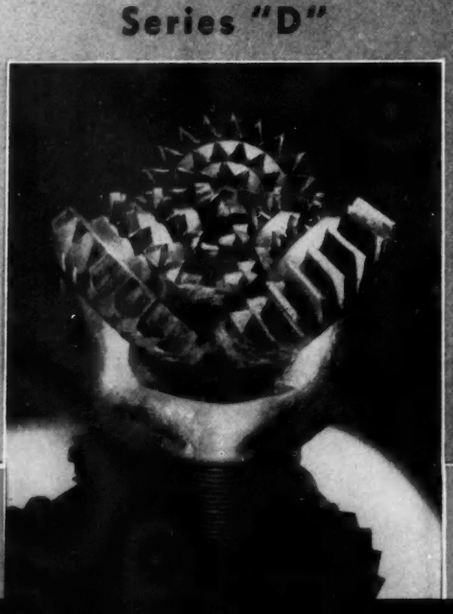


**Series "D"**



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**Here are members of the drilling crew of the Drilling & Exploration Company which completed the discovery well on the concession held by the Blue Goose Oil Company. The tall American in the center is Earl D. Van Marter, transportation manager whose task it was to bring all drilling equipment and other supplies from New York to Peru.**

was skidded just 24 feet, and Agua Caliente 1-A was spudded on February 14, 1939. Eleven days later Agua Caliente 1-A topped the pay formation. It took just 11 days to drill this project to 1174 feet, including the four days the well required for the cement to set. Very little coring was necessary because Moran and his aids had all the information necessary from the first well. The formation penetrated is comparable to 90 percent of the oil fields of the country, Moran said. However, he said the formation is particularly comparable to the Rocky Mountain structures, it being of the same geological age. The formation found is of the Cretaceous. The structure has big uplifts and high dips.

Drilling of Agua Calienti 1 and 1-A was done by Drilling & Exploration Company of Los Angeles, J. E. Brantly's concern, with C. E. Kelly supervising the work.

An interesting angle revealed by Moran is that while the 7⅝-inch casing was landed and cemented at a depth of 1020 feet, there was ample shale above this point for the casing to be cemented. There were approximately 115 feet of excellent shale above 1020 feet, which shows that there was really something there for the casing to be cemented in. Moran said he did not take in all of the available zone for the production test. He says that it now is up to Blue Goose Oil Company to endeavor to prove up the whole of the structure. It will be impossible for the company to do any further derrick skidding because of the extremely mountainous country.

While discovery of oil in the Peruvian jungles may sound comparatively simple to the average American oil operator, the fact that oil was discovered in the first and second wells is only a minor part of this interesting development. Years were spent in laying the groundwork for the actual operation of drilling. Field men, long experienced in the ways of outdoor life in remote parts of the country, had to enter the jungle area, become familiar with native habits, the way they worked and lived, and to make the most of conditions as they found them. Blue Goose Oil Company furnished all that civilization meant to the American geologist and engineer who did the dirty work of putting up a camp, making living quarters sanitary, and devising ways and means of combating the natural hazards of the great outdoors. One of the major delays had to do with the sinking of a barge towing 400 tons of oil field equipment up the great Amazon River. This occurred when the only means of transportation struck a submerged tree. It resulted in a five-month delay in laying the initial groundwork.

Since 1870, oil developers have tried to develop oil in Peru. For 20 years they searched until it was found along a narrow belt on the west coast of Peru. Not until Blue Goose Oil Company struck oil has the vast central area of Peru been so fortunate. Geologists report that present production on the west coast is coming from Tertiary rocks of Eocene age, while the recent discovery shows that the oil is coming from the Cretaceous age.

No additional equipment is needed to continue the present program of development for Blue Goose Oil Company although later in the year it is possible that the company will augment its crew facilities and perhaps increase its string of tools in the field.

## *Holman tells story of Mexican confiscation*

The recent visit of Donald R. Richberg to Mexico City in the interest of American oil companies whose properties were expropriated, brought no solution to the problem, Eugene Holman, head of the Standard Oil Company of New Jersey's interests in Mexico, told stockholders in a report issued last week.

Detailing various phases of the Mexican government's confiscation of privately owned properties last year, Holman said:

"At the beginning of 1938, operations were being carried on at a normal level. Exploratory efforts had been greatly decreased. New construction and, in most cases, even normal maintenance, were at a virtual standstill generally in the industry. This situation was the direct result of a long series of restrictive measures and crippling labor difficulties which had been fomented and fostered by the Mexican government with apparently the sole purpose of confiscating the properties of the principal companies operating in Mexico.

"The oil companies entered an appeal in the courts against the award of the Labor Board of December 18, 1937. The Mexican Supreme Court rendered its decision on March 1, 1938, upholding in every respect the award. This required 17 oil companies and, by extension, their associates and affiliates, all foreign-owned and controlling approximately 80 percent of the crude oil production and 98 percent of the refining capacity in Mexico, to abide thereby. Observance of its terms not only would have stripped the respective managements of the last vestige of effective control over their operations, but would have imposed expenditures almost double the average total net annual profit during recent years of all the companies involved.

"The companies advised the government of their inability to meet all the terms of the award. In a last effort to forestall seizure of the properties, they offered to meet the principal financial demands, provided that objectionable administrative provisions of the award be not enforced and the companies permitted to continue their management and control of operations. The Labor Board thereupon declared the oil companies in 'rebeldia,' which is technical phrase meaning 'in default.' The president of the republic, however, proclaimed that the companies refused to obey the order of the court and had assumed a 'rebellious attitude,' an obvious distortion of the Spanish word 'rebeldia.' Instead of applying the procedure prescribed by the pertinent laws of Mexico for situations where an award of the Labor Board is not complied with by an employer, he ordered that the properties be seized and delivered over to a government agency which had already been constituted for that purpose. The seizure was effected under a 'decree of expropriation' issued by the president on March 18, 1938.

"While the company was not named in the decree, its properties were confiscated and are now held and operated by the government agency. As a consequence, all company operations were suspended and the American personnel forced to evacuate. Your properties and assets are now being used for the sole benefit of the Mexican government."

## *Shipment of 300 tank cars to Mexico commences*

Two groups of tank cars, one of 34 and the other of 87, passed through Laredo, Texas, recently, en route Tampico, from which point they will be distributed to various Mexican oil fields. These cars are part of a batch of 300 recently leased by the Mexican government from General American Transportation Company. Capacities of the cars range from 8000 to 10,000 gallons each.

It is said most of the cars will be used to handle crude and fuel oil for Southern Pacific Railway and Mexican National Railways.

# MEN IN THE INDUSTRY'S NEWS

**E. J. RAISCH** has been appointed executive secretary of the National Oil Scouts Association and has set up headquarters in Houston, from which he will work with the convention committee in completing plans for the association's annual convention to be held in Houston May 18-20. Raisch, an oil operator since 1932, has been identified with scouting and production enterprise since 1906. From 1906-1911 he was with the pipe line and scouting department, Standard Oil Company of California; from 1911-1914 he was general superintendent, Southern California Gas Company; from 1914-1919 he was superintendent of the gas and gasoline division, Texas Pacific Coal and Oil Company; 1919-1921 he was assistant to general superintendent, Arkansas Natural Gas Company, and from 1921 to 1932 he was scout, and later chief scout and officer, of Republic Production Company.

**E. D. HOPKINS,** of New York, with the production department of The Texas Company, was in Houston last week.

**ARMSTRONG PRICE,** consulting geologist, has returned to Corpus Christi after six weeks absence in West Texas and New Mexico.

**KARL HASSELMANN,** president of Salt Dome Oil Corporation, Houston, is visiting in New York.

**E. J. RAISCH**

**S. S. LAIRD,** operator of Kilgore, Texas, stopped in Evansville last week while looking over activity in Indiana, Illinois and western Kentucky.

**CLARK A. GRUNER,** graduate petroleum engineer of the University of Oklahoma, has been employed by Magnolia Petroleum Company temporarily for practical field experience in the upper Mid-Continent and several Texas areas. Upon the completion of this training period he will be transferred to Venezuela for duty with a unit of the Socony-Vacuum Oil Company.

**H. G. ELLIS,** superintendent for Buffalo Oil Company, Dallas, has been transferred to Wichita Falls to take charge of the development of the company's recently acquired property in the K-M-A field.

**E. T. GATRELL,** general superintendent of the Tulsa pipe line division of the Gulf Refining Company, has resigned after 26 years' service with the company. He has been succeeded by J. N. Hunter, former assistant general superintendent.

**J. C. BORAH,** W. J. Wright and J. E. Pollar have organized the W. W. Oil Corporation as an Illinois corporation. Headquarters have been established in Fairfield.

**HARRY T. STATON,** Cushing, Oklahoma, has been elected a vice president of the Oil Workers' International Union, CIO affiliate. He succeeds John L. Coulter, Fort Worth, who became head of the organization April 5 following the retirement of Harvey C. Fremming because of ill health.

## *Texaco Old-Timers Club honors retiring veterans*

Three retiring officials of The Texas Company were feted at the third annual banquet of The Texaco Old-Timers Club in Houston on April 12. T. J. Donoghue, executive vice president; George L. Noble, vice president, and P. C. Scullin, vice president, rose to the introduction of A. S. Bailey, president of the club, and reviewed their combined total of 104 years with the company. Active service will end for all three on June 30.

Donoghue, whose connection with The Texas Company began with its organization in Beaumont in 1902, was born in Titusville, Pennsylvania, in 1869. After 18 years service with Standard Oil Company in Pennsylvania he moved to Texas to become assistant treasurer of the company and later, treasurer. He was a director from 1902 until 1935, and has been vice president since 1903.

Noble joined the company in 1908, was made manager of fuel oil sales in 1909, held a directorship from 1909 until 1927 and has been vice president since 1912.

Scullin, who is also manager of Indian Refining Company, joined the company in 1903 as a stenographer and clerk. At one time he was manager of the company's refining department.

Twenty-five year service buttons were presented to 29 other employes, and gold watches to 16 employes with 30 years of service. The club, which is one of 12 similar organizations within the company, is only for employes with 25 years of service.

**T. J. Donoghue, P. C. Scullin and George L. Noble (pictured in the order named), who were honored by the Texaco Old-Timers Club at the annual dinner meeting on April 12. All vice presidents of The Texas Company, they are to retire on June 30 of this year.**

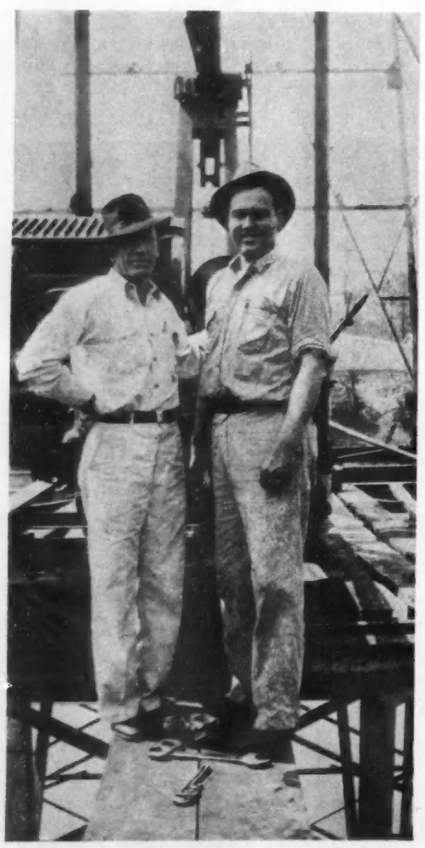
**PAUL F. OSBORN,** district geologist for Tide Water Associated Oil Company, has shifted his Illinois basin headquarters from Mattoon, Illinois, to Evansville, Indiana. Making the change with him are Lloyd Nash, district land man; E. T. Benson, geologist; Maynard Roger, geologist; W. H. Cordell, scout; C. H. Fiddler, land man, and C. H. Baungartner, title man.

**ELMER W. ELLSWORTH,** geologist in Illinois for W. C. McBride Company, discussed "The Inside Picture of an Oil Field" before a Centralia civic group last week.

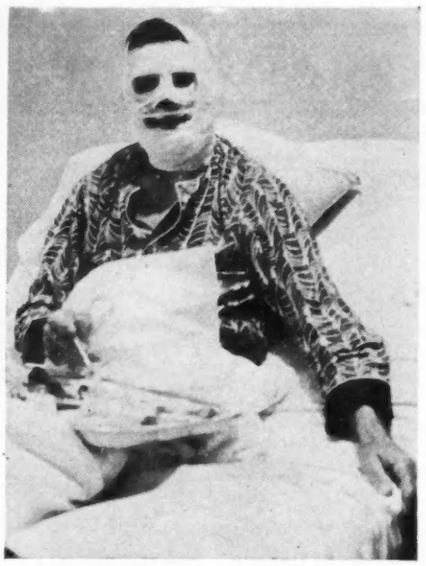
**F. L. HILLIARD,** A. W. Givens and E. L. Cunningham last week organized the Royal Oil & Gas Company as an Arkansas corporation with headquarters in Traskwood, Saline County.

**ROBERT A. FEEMSTER,** of Oklahoma City, was the guest speaker, April 12, before the Petroleum Engineering and Geology Club at Texas A. & M. College. This club is the student affiliate branch of the American Institute of Mining and Metallurgical Engineers at the college. Feemster spoke on "Controlled Vertical Drilling" to 98 members.

**J. G. (JACK) PEW,** assistant to the vice president in charge of production for Sun Oil Company at Dallas, spent the past week at the company's general office at Philadelphia.



**GEORGE MYERS and ROBERT JAMES**
**superintendent and pumper respectively, for T. W. M. Oil Company of Gladewater, Texas, are shown completing the installation of pumping equipment on one of their wells in the Sabine River bed of the East Texas field.**



**FLOYD CUMMINGS**
**superintendent, Texola Producing Company, Gladewater, Texas, is progressing nicely. He will be able to leave the hospital after three weeks of confinement due to burns received from a boiler firebox explosion.**

**T. W. SIMMONS,** who has been looking over activity in the tri-state area of Indiana, Illinois and Kentucky, returned with Mrs. Simmons to Los Angeles last week. Simmons expects to return to Evansville in about 30 days.

**DR. WILLIAM J. LOCKE,** vice president of United Natural Gas Company, Oil City, last week discussed "The Past, Present and Future of the Natural Gas Industry" before a civic organization at Franklin, Pennsylvania.

**M. J. CZARNIECKI,** vice president of A. M. Byers Company, Pittsburgh, was in Houston during the past week.

**J. F. DINDA,** Hungarian-American Oil Producing Company, Budapest, is a Tulsa visitor. He is in the United States making a two-year survey of the petroleum industry.

**JACK JORDAN,** Sinclair Prairie Oil Company, has been promoted to assistant to chairman of the board, succeeding Horace Fitzpatrick, resigned.

**DR. J. WILLIS STOVALL,** associate professor of geology at University of Oklahoma, addressed the Oklahoma City Geological Society on Permian Reptiles of Oklahoma.

**G. L. DANINGBERG,** Carter Oil Company, has been transferred to St. Elmo, Illinois.

**M. F. BRIDGES,** purchasing agent, Tide Water Associated Oil Company, Tulsa, spent the week-end in Fort Worth where No. 2 Council of N.A.P.A.A. was in session.

**PAUL A. DIGGS,** James H. Meyer and Mrs. Inex R. Royster, all of Evansville, last week organized the Kenillind Oil Corporation as an Indiana operating firm. Offices have been established in the old National Bank Building, Evansville.

**F. S. McCABE,** geologist for Superior Oil & Refining Company, Tulsa, arrived in Calgary, Alberta, last week to survey oil activity in the west Canadian province.

**DR. V. A. GRANT,** chemist toxicologist of Cook County Laboratories, Chicago, made a survey in Alberta for American interests and last week predicted that Chicago financial interests would make heavy investments, "possibly this summer," in the Peace River section of Northern Alberta.

**E. U. YOUNG,** T. O. Young, both of Bristow, and J. E. Roberts. Okmulgee, last week organized Stone Hill Drilling Company as an Oklahoma corporation. Headquarters have been established at Okmulgee.

**HENRY M. DAWES,** president of The Pure Oil Company, presided at the annual stockholders meeting of the company held last week in Columbus, Ohio. Directors elected at the meeting, in addition to the company president, were Sewell L. Avery and Philip R. Clarke, Chicago; Charles S. Cheston, Whitemarsh, Pennsylvania; Beman G. Dawes, Columbus, Ohio; J. A. Elkins, Houston, Texas; John H. McCoy, Columbus, Ohio; R. W. McIlvain, Chicago; Joseph W. McIntosh, Warrenton, Virginia; J. E. Otis, Rawleigh Warner, C. B. Watson and L. S. Wescoat, all of Chicago.

**W. B. "SLIM" PEARCE,** Shreveport operator, was in Evansville last week.

# DIED:

**ROY ELICK SHAWVER,** 50, oil driller widely known in Kansas fields, died April 4 in a Wichita hospital following injuries suffered February 18 when struck by a car in that city. He made his home in Lyons.

**IRA G. YATES,** West Texas oil operator and ranchman, died April 12 in an Austin, Texas, hospital and was buried April 13 beside the grave of his wife in San Angelo, Texas. Yates, 79, was the major owner of the vast and prolific Yates field in Pecos County. He is survived by five sons, three daughters, and a number of grandchildren.

**J. C. GLASS,** 49, oil operator of San Antonio, who formerly resided in Dallas, was fatally stricken by a heart attack April 10 in the Bexar County courthouse, where he was to testify in a lease suit.

**WILLIAM DOUGLAS CHEW,** 65, Shreveport operator and attorney, died suddenly in New Orleans April 7. He was one of the developers of the Caddo oil field.

## *Committee kills bill on workmen's compensation*

The house committee on oil, gas and mining has killed a bill by Price Daniel which would require an operator to obtain workmen's compensation before he was permitted to drill an oil well in Texas.

# THE WEEK'S NEWS SUMMARIZED

## Allowable

Texas is expected to produce 69,892 barrels more daily during April than in March, according to latest figures of the Texas Railroad Commission. The April allowable now stands at 1,703,638 barrels daily. But since there are but 25 producing days, with Sunday shutdowns required, the state will produce 42,590,950 barrels in the month. However, 116,493 barrels have been exempt from the Sunday shutdowns because of water conditions. Therefore, it figures out that Texas' average production for the 30 days in April will be 1,439,113 barrels, or 26,213 barrels more than the Bureau of Mines estimate of consumer demand.

Meanwhile, a restraining order issued April 4 that forbade application of severe Texas allowable cuts then in existence was continued for another 10 days, although higher allowables have been granted. In granting the extension, the federal judge stated the confiscatory conditions that caused him to issue the order originally still existed.

On the following day, April 14, the state attorney general filed two motions, one of which asked dismissal and the other for a postponement. The postponement was granted, but no action was taken by the court on the dismissal request.

## *Legislation*

Illinois was studying the problem created by its growing crude oil production, as a joint committee of the Illinois House and Senate heard oil men tell of conditions in the state's fields and make recommendations for legislative action. Outstanding was the indication that approximately one eighth of the state's output is being marketed below posted prices, as operators bid for market connections.

The clause in the Wheeler-Truman bill that would prohibit pipe lines from transporting oil in which they held any interest is expected to be eliminated from the measure. This action is likely to come from the Senate Interstate Commerce Committee in an effort to avert a controversy over divorcement of pipe lines from other branches of the oil industry. This probable action was disclosed at a hearing in Washington last week, when a number of oil men appeared to protest the proposal legislation.

A new approach to the monopoly problem will be tried out first on the oil industry by the Temporary National Economic Committee. Under the new program, representatives of the industry will be given an opportunity to voluntarily express their views. Heretofore, investigations have been under the control of various federal agencies represented on the committee. The oil study is expected to be initiated not later than June 1.

Measures providing for acquisition of California offshore lands by the federal government are seen in Washington as unlikely of adoption by Congress. Present opinion is that Congress will confine itself to a resolution instructing the attorney general to bring suits to determine ownership of these underwater oil fields. So far as can be learned, neither the Senate or House committees have given any consideration to the legislation since the extensive hearings last month.

Michigan's oil conservation act, which was adopted by the state's House by a 79 to 8 vote, is expected to be brought out on the Senate floor for vote within 10 days to two weeks. Small operators in the southwestern part of the state continue to protest against the bill. Several other oil measures have been introduced into the state's legislation.

## *Statistics*

Moderate operations at refineries but loosened control of crude production were reflected in the latest weekly statistics. Crude production averaged 3,443,900 barrels daily, an increase of 85,700 barrels. This was due largely to Texas.

Refinery runs were reduced 25,000 barrels to 3,145,000 barrels, and gasoline stocks dropped 664,000 barrels to 86,613,000 barrels. At this level storage was 6.1 percent lower than a year ago.

Stocks of gas oil and fuel oil were further reduced, and at 126,199,000 barrels were at the same level as a year ago.

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# Oil at the Capitols

**Illinois legislators listen to conservation views of oil men . . . Pipe line divorcement threat now appears eliminated . . . New monopoly study plan**

### *Illinois legislators hear plans for conservation*

What can be done when more oil is coming from the ground than a market will consume? This was the question before a joint committee of the Illinois House and Senate as it met at Champaign last week to listen to the viewpoints of oil men. The meeting recalled to mind similar ones held when Seminole and East Texas had similar experiences.

Background for the committee hearings is the fact that Illinois with daily output of 165,000 barrels has a substantial amount of that output, perhaps an eighth, selling below posted prices as producers compete for market connections.

The meeting in Champaign was the second of the committee to collect facts and opinions, which will go into a report to the Illinois legislature April 30.

G. H. Blankenship, discoverer of the Cordes pool, told the committee that he wanted to see the price stabilized. He recommended a law to give a per well minimum of 40 barrels daily, plus ratable takings by purchasers. Blankenship gave a history of proration in Texas and pointed to the increase in posted price of East Texas oil along with lower output following effective proration orders.

Dr. John W. Frey, U. S. Department of the Interior, offered the attitude of that agency toward conservation as "No operator should be allowed to waste this resource because it is more profitable for him to do so."

Russell B. Brown, Washington counsel for the Independent Petroleum Association of America, classed state regulations of the industry as a block against federal control with the states with substantial oil output in position to avoid it. "If they do not," he warned, "then the industry may be so distressed and waste encouraged to such a degree that the federal government may feel called upon to take active steps for the regulation and possibly the eventual control of the industry."

His prepared statement revealed that no state has repealed a conservation law, that a few states cannot hold back oil output while others are unrestricted, that sound conservation by states is the only "means by which the small producer has been able to stay in business," that the price of Illinois oil is high today because other states restrict output, that unnecessary and unprofitable drilling has been reduced under conservation laws.

L. M. Mylius, consulting geologist, advised against a law to fix well spacing because of the lensing characteristic of sands. He urged some agency for determining the proper spacing. He did recommend regulation for wells, which are drilled into water, which, he said, should be plugged back properly.

After giving a statistical picture of development in the Illinois basin, Dr. A. H. Bell, Illinois Geological Survey, recommended wider spacing for lime producing areas than for sand fields from economic viewpoint. He testified, however, that more oil would be recovered per acre by close drilling than by wide drilling. He said no data existed to prove advantage of restricting flow in all fields and that in instances wells might be properly produced to capacity and still be within sound engineering practice.

To a specific question as to the advisability of having a law to compel offset drilling, he said a well a mile from production would suffer no immediate damage by not being produced. He expressed the opinion that 60 percent of the area of Illinois is favorable to oil producing. Older fields of the state are producing six tenths of a barrel per well per day while new fields have daily well average of 57 barrels.

At the request of the committee Dr. Bell will make a written statement of the needs for a law to compel well owners to furnish logs of completed wells. He told the committee that the department has favorable cooperation from the industry and that only individuals with limited capital are inclined not to furnish well information.

Dr. Bell placed the reserve uncovered in fields since 1936 in Illinois at 350,000,000 barrels.

The first question asked Walter H. Voskuil, Mineral Economics Division of the geological survey, was "What makes the posted price?"

"Over the long run," he replied, "supply and demand determine price."

Another question, "Could price be determined by monopoly?"

"It could be," he admitted, "but there is no evidence to prove that it is."

On the question of production of petroleum in Illinois and consumption in the state, he gave 59,530,000 barrels as the indicated consumption for 1938 with production of 23,900,000 barrels. He said 1939 production should reach 55,000,000 barrels.

Voskuil explained that rapidity of field development and lack of pipe line facilities have been responsible for failure of full Illinois output to find market at posted price. He said he knew of no legislative means by which market can be strengthened.

Voskuil said the central refining area, to which Illinois oil holds transportation advantage, required more than 400,000 barrels of crude daily and expressed the opinion that the market situation will right itself with added pipe line facilities and expiration of crude oil contracts in other areas.

F. W. DeWolf, professor of geology, University of Illinois, cautioned the committee on the tendency toward government control with:

"Although I like to see orderly development in oil fields, I would hate to see control. So many such efforts have resulted in dissatisfaction with some elements. Each time this happens we come that much closer to government control."

W. L. Summers, law professor, University of Illinois, and author of a conservation measure before the legislature, was questioned concerning the matter of proration between states and asked what he thought of Texas and Oklahoma producing what each consumes then prorating after reaching that figure.

"I see," he answered, "no more justification in that than in Illinois producing only the corn it consumes and prorating corn output on the excess."

"If," he continued, "you had well output in Texas comparable to Illinois, you would have oil selling at five cents a barrel."

Summers opposed an offset requirement law saying that well spacing would accomplish better results. He insisted that the law he had written was designed to bring about conservation with well output restriction a part of a conservation program.

Committee members took up the question of taxing leases, which he said would be legal but he doubted its wisdom since it would restrict leasing. He said also that leases taken on low bonus payments are legal and cannot be broken and that verbal promises made concerning drilling are not admissible as evidence in breaking a lease.

This question then brought a round of laughter:

"Then what do you think should be done when a company pays ten cents an acre for leases, knowing all the time that oil is there?"

Complexion of the political attitude toward conservation in Illinois was changed by return to duty of governor Henry Horner April 11. The governor had been absent four months while recuperating from an illness.

During his absence John Stelle, lieutenant governor, an opponent of compact membership and proration, had served as acting governor. In this period it seemed doubtful that even a conservation statute would get legislative attention.

### *Pipe line divorcement is not expected now*

In an effort to avert a controversy over divorce in the oil industry which threatened to make impossible enactment of new carrier legislation this session, the Senate Interstate Commerce Committee is expected to eliminate from the Wheeler-Truman transportation bill provisions which would extend the "commodities clause" of the present carrier statutes to all carriers other than those by air.

Effect of such extension would be to prohibit pipe lines from transporting oil in which they had any interest, direct or indirect.

The probable action of the committee

was disclosed by Senator Wheeler (Dem., Mont.), co-author of the measure and chairman of the committee, during hearings April 11 at which representatives of the industry voiced their opposition to the proposal.

In his view, the Senator said, the question of divorce is one which should receive consideration separate and apart from the general subject of transportation as it is proposed to be dealt with in the bill. He refused to say, however, that the subject would not be taken up at some later date by the committee.

Senator Wheeler made it clear that he was "not wedded" to the commodities clause as carried in the bill and was fearful of the economic effects it might have upon industry in the event of its enactment and enforcement by the Interstate Commerce Committee.

First witness to discuss oil before the committee was Major John H. Ross of New York, representing the Inland Waterway Petroleum Carriers, operating a fleet of tankers, who asked exemption from regulation under the Commerce Act.

Major Ross told the committee that the cost of transporting oil by rail is 30 times that of water haulage. Further, he said, transportation is the largest factor in the price of gasoline, a statement which precipitated a colloquy among members of the committee.

It was pointed out by Senator Reed of Kansas that there is little relationship between production costs at the well and prices at the filling station due, he insisted, to a system by which the price of gasoline is determined by the "large interests."

"We have very little oil in Indiana, but it is noticeable that the price of gasoline is the same everywhere in the state," Senator Minton of Indiana declared.

"We produce oil in Wyoming and have refineries there, but the price of gasoline throughout the state is the cost of production plus the transportation charge from Tulsa but, of course, the oil doesn't move," Senator Schwartz interjected.

Further, he said, he understood that California-produced gasoline was being sold on the Atlantic coast at one-fifth the price charged for the same gasoline in Seattle.

Strict application of the proposed ban might make it impossible for an oil refinery to own the facilities necessary to refine oil, it was pointed out by Paul G. Blazer, president of Ashland Oil & Refining Company, Ashland, Kentucky.

In the case of his own company, Blazer said, the proposal might lead to difficulties in its refinery, part of which is located on the Kentucky side of the Big Sandy River and part on the West Virginia side, with the oil moving from one side to the other by pipe line during the refining process.

"There are people who would like to see the ownership of common carrier pipe lines divorced from the oil industry," Mr Blazer continued. "They point to the fact that present pipe-line rates yield such large returns that the major oil companies which own the most of the lines are able to utilize their exorbitant pipe-line profits to subsidize losses in their refining and marketing operations, thus working a competitive hardship on non-integrated companies operating only in refining and marketing.

"It would appear that the way to correct that injustice is for the Interstate Commerce Commission to exercise the authority which it already has to prescribe rates for common carrier pipe lines which will yield only a fair return on the investment and thus afford pipe-line transportation to all shippers at an equitable cost. It would seem advisable for governmental agencies first to make much needed use of the authority which they already have before being given such tremendous new responsibilities as are provided by the legislation now proposed. Moreover, if private ownership of pipe lines by oil companies is to be outlawed, thus forcing all pipe-line transportation into common carrier lines, it is most essential that common-carrier rates first be reduced to a proper level."

"Present-day economics of the oil business, which is one of the most highly competitive industries in this country, are such that most companies operate with a profit margin of only a few cents per barrel, which profit may easily be wiped out by a slight change in transportation costs," he concluded. "In fact, the average oil company shows a profit of only a small fraction of a cent on each gallon refined and sold.

"The operations of Ashland Oil & Refining Company are as profitable, relatively, as those of our larger competitors, yet our entire earnings of slightly over a half-million dollars last year amounted to less than the savings which we effected by transporting our own products instead of relying upon common carriers. The taking away of these savings would not only destroy the profitable operation of our company, but it would directly affect the more than 3000 royalty owners and oil producers who receive crude-oil checks from us each month. Also, almost a hundred independent gasoline distributors and their hundreds of dealers who, as marketers of our products, participate indirectly in our transportation savings, would have to look for a new source of supply."

Retention of the provision was urged by Paul E. Hadlick, National Oil Marketers' Association, as the only way in which the pipe lines "will ever become carriers in fact."

"The major oil companies control better than 90 percent of the pipe lines and they have this powerful instrument of monopoly and they use it," Hadlick declared. "For years it has been used to whip the independent producer, the independent refiner and the independent marketer each in their turn."

Asserting that the pipe line profits is but one of the ways in which the major oil companies have been "financially fortified by Congress," the marketers' representative charged that the Connally Act, the Interstate Compact and the import duties on oil, together with the Bureau of Mines forecasts, all tend to further strengthen their hold.

"The independent marketer is in an unfortunate position because the major oil companies can and do use their profits from transportation and production to drive the marketer out of business," he told the committee.

"The same reasons exist now for the divorcing of the pipe lines as existed over 30 years ago when the commodities clause was first passed. The railroads that owned coal mines were giving part of their transportation profit away in an endeavor to ruin the independent coal producer and seller. The major oil companies are using their pipe line profits to ruin the independent marketer; once they succeed in 'squeezing' the independent out please do not be so gullible as to believe they will not make the consumer pay through the nose."

The proposed restrictions are not intended to expand the jurisdiction of the Interstate Commerce Commission but are "directed solely to the question of who shall own the pipe lines," it was declared by J. A. Neath, Houston, representing the Humble Pipe Line Company.

There has never been a formal complaint filed with a state body or the Interstate Commerce Commission based upon affiliation of pipe lines with producing or refining companies, he declared, although the regulatory bodies have the authority to prescribe rates and investigate pipe line practices.

"The absence of any appreciable demand for this legislation has its basis in the understanding, on the part of all branches of the oil industry and affected parties, of the peculiarities of the oil pipe line which distinguish it from the railroad or other mode of transportation, and which make the application of the commodities clause to the oil pipe line impractical and even destructive," Neath declared.

The railroads, he pointed out, can carry practically any commodity, whereas the pipe line is confined to one, and wherever a pipe line has voluntarily separated from other branches of the industry to conduct a common-carrier business it has not been successful.

"Under existing practices the independent producers of oil finds a ready market for his product because of the affiliation between the transporter and the purchase of crude oil and the consequent effectiveness of the 'common-purchaser act' and of 'ratable taking' by the carrier when applied together," he said. "This benefit will inevitably be lost if and when the purchaser of oil is divorced from any interested pipe line.

"In brief, the pipe line with its affiliated purchasing company now furnishes not only transportation but the market as well to the individual producer. If divorced from the purchasing company it could only furnish transportation."

## *Monopoly investigation on new tack-oil to be first*

A new approach to the monopoly problem has been adopted by the Temporary National Economic Committee and will be tried out first on the oil industry.

Under the new program, it was announced by Chairman Joseph C. O'Mahoney, representatives of the industry will be given an opportunity voluntarily to express their views.

Heretofore, investigations have been under the control of the various federal agencies which are represented on the committee. In several instances there was evidenced an apparent desire on the part of the officials of those agencies to "smear" certain companies and to engage in a "witch hunt."

This procedure, which did not result in the favorable public reaction which federal officials had confidently expected, has been distasteful to congressional

members of the TNEC as well as to congress generally, and there was some consideration given to calling the investigation to a halt by refusing additional funds. An additional $600,000 was granted last week but, it is understood, with the condition that the investigation be conducted in a more dignified manner.

Announcing that the oil investigation would be initiated not later than June 1, Chairman O'Mahoney explained that numerous conferences have been held with representatives of both large and small companies of varying or conflicting views as to what is wrong in the industry, and that they will be invited to designate witnesses who will present their views and facts with respect to the economic problems.

"To indicate the manner in which this program has been developed," he said, "it may be stated that Mr. Axtell T. Byles, president of the American Petroleum Institute, the largest trade association in the oil industry, has consented to seek the cooperation of various leaders in the industry. These persons will be given the opportunity to present prepared statements to the committee and then will be subpoenaed to appear in person at the projected hearings. The committee will call other witnesses in order to make certain that an adequate presentation is made of all available information with respect to the manner in which the oil industry is conducted."

The committee's offer is made without limitation as to the content of the testimony or reports, the Senator explained, except that the material presented must include data requested by the committee and any opinions, including any criticism that may be made of existing governmental or intra-industry policies, must be supported by actual evidence.

"Interest," he said, "will naturally center on problems of production, refining, transportation and distribution, with particular reference to the effect upon employment and upon the prices which are charged for the finished product, as well as the effect of industrial and corporate organization upon the industry. What is the exact relationship between the independent producer and the independent distributor upon the one hand and the major units in production and distribution upon the other? What restraints, if any, exist upon free enterprise? These and many other similar questions which are constantly being propounded will be presented and studied.

"I am happy to be able to say that this plan has been received with approval by spokesmen for all factors of the oil industry who have been interviewed."

Senator O'Mahoney explained that it has been the purpose to provide a distinct method of non-governmental presentation, since the inception of the investigation, but that heretofore the presentations which have been made have been directed by the executive departments and commissions. The new program will provide for a forum of all interests in an industry, directed by the committee itself, which will inform witnesses as to the general nature of the questions on which they are to prepare themselves.

### *No action or expected action on off-shore confiscation*

Measures providing for acquisition of the California offshore lands by the federal government, on which Senate and House committees last month held extended hearings, are seen in Washington as unlikely of adoption and any action taken by Congress in the matter, it is believed, will be confined to a resolution instructing the attorney general merely to bring suits to determine ownership of the underwater oil fields.

So far as can be learned, neither committee has given any consideration to the legislation since the hearings, at which California, Texas and Louisiana officials vigorously fought the measures and representatives of other coastal states registered protests against the possibility that the federal government eventually might seek to control their offshore lands.

Pointing out that the bills carry a far-reaching proposal to establish a national policy which he does not believe can be supported by law, Senator Tom Connally of Texas, who aided in the presentation of that state's opposition, expressed the view that Congress will not act favorably on the legislation, and predicted that if the committeees do report, which he considers doubtful, they will limit themselves to the suggestion that the attorney general bring a test case to secure a court decision as to ownership of the lands between the low-water mark and the three-mile limit. "Certainly," Senator Connally said, "there will be no declaration of policy, such as one seeking to establish federal ownership which the resolutions now provide. We are opposed to Congress giving voice to such a policy which, in plain language, as we view it, seeks to give in advance of a suit something the federal government does not have."

## Government Had Different View on Offshore Lands Eight Years Ago

In view of the federal government's desire to gain ownership of offshore lands because of their value as oil producing reservoirs, some correspondence that took place in 1931 is of interest.

It will be noted that the letters were written 8 years ago, and that the federal government's General Land Office Commissioner states "The title to the beds of the navigable waters is vested in the state by virtue of its sovereignty, if the body of water was navigable when the state was admitted to the Union, and the laws of the state will control as to the minerals in the land under the waters."

March 31, 1931

Hon. Chas. C. Moore
Commissioner of the
General Land Office
Washington, D. C.

Sir:

In view of the Louisiana Purchase and the Treaty of Gaudaloupe Hidalgo, it appears that the federal government would have acquired jurisdiction over the submerged lands within the limits of the territorial waters and off the shores of Louisiana and California, and, that in the matter of leasing such lands for the development of oil deposits, your office has authority under the provisions of the Act of February 25, 1920 (41 Stat. 437.)

We understand, however, that the states of Louisiana and California have leased portions of these areas and have collected oil royalties thereon.

In our search of the records, we have been unable to find statutory provisions or other evidence that the federal government has relinquished to these states jurisdiction in this matter.

For our guidance in acquiring interests in these submerged areas, please advise us as to their status in the viewpoint of your office.

Yours very truly,
McCollum Exploration Company
(Signed) WILTON W. LARUE,
Geophysicist
Houston, Texas

April 9, 1931

McCollum Exploration Company
Wilton W. LaRue, Geophysicist,
1211 Esperson Building
Houston, Texas.

Gentlemen:

I have your letter of March 31, 1931, requesting the status of submerged lands within the limits of territorial waters and off the shores of Louisiana and California.

The title to the beds of the navigable waters is vested in the State by virtue of its sovereignty, if the body of water was navigable when the State was admitted to the Union, and the laws of the State will control as to the minerals in the land under the waters. This jurisdiction is, however, subject to the paramount power of Congress to control navigation between the States and with foreign powers. (See Scott vs. Lattig, 227 U. S., 229)

The State is the owner of all land below the line of ordinary high tide extending seaward co-extensive with its municipal dominion, and in the land-locked bays from headland to headland, and from the line of ordinary high tide on the shore of the open ocean seaward, a distance of three miles, or a marine league. Title to the soil under such tidal waters belonging to the State may be disposed of by the State provided such disposal and the purposes for which it is made may be accomplished without detriment to the public rights of navigation.

The mineral leasing act of February 25, 1920 (41 Stat. 437), has no application to lands within the three-mile limit and are, therefore, not under the jurisdiction of this Department.

As to non-navigable waters, the rights of the riparian proprietors are determined by the laws of the particular State in which the stream is located.

Very respectfully,
(Signed) C. C. MOORE,
Commissioner,
U. S. Department of Interior,
General Land Office,
Washington, D. C.

## *Michigan conservation act due final action in 10 days*

Scores of bills affecting the oil industry directly or indirectly were filed in the Michigan legislature during the week as the dead-line for introduction of proposed legislation neared.

House Bill 139 (oil conservation act) which was approved in the House four weeks ago by a 79 to 8 vote, was expected to be brought out on the Senate floor for vote within 10 days to two weeks. Oil industry leaders believe the bill will carry in the Senate by a wide majority. However, opposition to the bill has continued to be manifest by small operators in the southwestern part of the state in Senate hearings. Over 400 amendments were proposed by Charles Van Kuren, Lansing, but none of his proposals had been written on to the bill by the Senate conservation committee up to this week.

D. Hale Blake, senate leader, introduced a bill which would take jurisdiction of the natural gas industry from the hands of the Michigan Public Utilities Commission and place control with the conservation department.

A bill calling for a 2-cent increase in the state gasoline tax (now 3 cents) was introduced by G. A. Gillespie and Games Goulette, rural representatives, with a companion bill to cut weight taxes on commercial and passenger vehicles.

Other bills introduced in the House included: request for investigation of marketing practices of petroleum industry; regulation of transportation on highways of explosives, inflammable liquids; authorization for royalty owners to deduct tax now imposed if paying severance tax; annual tax on gross income of individuals and fiduciaries; change in proration of dry gas wells.

New Senate bills included: regulation of trucks and trailers on highways during week-ends and holidays; amend workmen's compensation law to allow only certified companies to write compensation insurance; five cent per gallon tax on fuel oil used in Diesel motored vehicles (tax now 3 cents).

## *Texas legislature makes some progress on tax bills*

The Texas Legislature last week shook off its lethargy. Both House and Senate passed a tax bill and the House passed the land bill intended to take the profit out of vacancy hunting.

The Senate passed a joint resolution providing for a constitutional amendment to finance old-age pensions through a 2 percent sales tax and a small increase on the natural resource taxes. This was a compromise plan which was worked out after the Senate had voted down the submission of any constitutional amendment; the measure passed barely obtained the 21 votes necessary for passage, and was sent to the House.

Later in the week, the House passed, 86 to 41, a bill to provide a pension fund through gross income taxes on business and an increase in natural resource taxes. Under the House plan, the new tax and pension program would not become a part of the constitution, nor would it be necessary to submit the plan to popular vote.

The Senate program, while it would not be subject to legislative adjustment as would the House bill, might benefit the oil industry to some extent by placing in the constitution a maximum tax on natural resources for pensions.

The House bill was passed finally by a vote of 86 to 41, and it should be noted that a majority in both houses is sufficient to enact this bill into law; in the case of the Senate constitutional amendment, two thirds of the members of each house must vote favorably before it can be submitted to the public.

The House tax bill provides for a tax of 1 percent on retail business and ¼ of one percent on wholesale business, with a deduction allowance of $45,000 for retailers and $75,000 for wholesalers. Lending money or credit is subject to a tax of 1/10 of 1 percent on gross income. The bill would become effective September 1, 1939.

Because business to be taxed is defined as "all activities or acts engaged in or caused to be engaged in with the object of gain, benefit, or advantage, either direct or indirect," virtually every type of endeavor will be affected.

It seems probable that one of these two plans will be finally passed. If a two thirds vote for the sales tax can be mustered in both houses, the constitutional amendment will be favored, but the House bill is more likely to be enacted since only a majority is required. However, it will undoubtedly be radically rewritten, both by the Senate and House, before it comes to a free conference committee.

## *Pollution laws subject of bill introduced in Texas*

The house game, fish and oyster committee has recommended favorably a bill by Representative Schuenemann seeking to improve the enforcement of pollution laws in Texas. The bill is aimed particularly at pollution of rivers and creeks by oil and other industrial concerns. It defines pollution in the case of oil by saying a stream is polluted when any area in excess of 10,000 square feet, or for a distance of 300 feet is covered with oil, or when oil is equal to one-fourth of one percent of the volume of water.

Of more importance is the provision which defines as pollution the introduction of salt water into fresh water to the extent that the total salinity is in excess of 2000 parts per million.

The game, fish and oyster commission and the state health department would be charged with the enforcement of the act and venue of suits brought in the county where the pollution originated, or where it occurs. Thus, the City of Beaumont might sue an operator in Jefferson County for turning salt water into the Sabine river in the East Texas field.

While the bill is very drastic, it will undoubtedly receive considerable support in the house.

## *Bill would provide meters on all oil and gas lines*

Meters on all gas and oil pipe lines would be required under a bill introduced into the house last week by Representative Omar Burkett of Cisco. Burkett is a former Railroad Commission oil and gas supervisor. The meters would have to be installed within six months after the law becomes effective.

## *Condemnatory resolution on expropriation killed*

The Texas senate has killed a house resolution by Representative Travis Dean which condemned expropriation of American oil property by the Mexican government. The senate set the resolution for May 20, about 10 days after the current session will have adjourned.

The opposition protested that the legislature of Texas had no powers in the diplomatic realm. The resolution would have urged the state department to press for compensation to oil companies whose properties were taken.

## *State claiming 328-acre vacancy in Yates field*

A suit seeking to recover 328 acres of land out of the Yates field for the state of Texas, as a vacancy, was filed last week in district court at Austin. The petition filed by Attorney General Gerald Mann asked for recovery of the land and $10,000,000 for oil produced heretofore.

The petition alleged that the land in question lies between Runnels County School Land Survey No. 3 and various T. C. Railway Surveys. It is alleged that the land in question is being claimed by the defendants as a part of Runnels County School Land Survey No. 3 when, as a matter of fact, Runnels County School Land Survey No. 3 includes only one league of land, in accordance with the constitutional grant of such land to Runnels County. It is alleged that Runnels County School Land Survey No. 3 was entitled to one league of land only and that it was the intention of the state of Texas when such grant was made and also of Runnels County, the grantee of such land, and of the surveyor who made such survey, to include in the grant only one league of land.

The state in this suit asks the court to reform and establish the boundaries of Runnels County School Land Survey No. 3 so as to vest title in the owners of Runnels County School Land No. 3 of one full league of land and no more, and that as to the 328 acres in addition to one league of land, the state recover title and possession thereof.

Humble Oil & Refining Company and Gulf Oil Corporation were among the oil companies named as defendants in the action.

## *Texas lower house passes bill to curb vacancy hunting*

The Texas House of Representatives this week finally passed House Bill No. 9, by Representative Paris Smith of Matagorda County. The bill has as its purpose the elimination of vacancy hunting which has been prevalent for many years in Texas, especially after land has become valuable as oil property. It is believed that the bill will meet with less opposition in the Senate than it had in the House.

The bill provides that good faith claimants (claimants in most instances who have farmed or ranched on the property) have the advantage in obtaining a title to any vacancy that may be discovered. It would be subject to sale to such claimants, but if within five miles of a producing oil well, the sale would be with a free royalty of ⅛ to

the state. If the land is further than five miles to the oil field, the state gets 1/16 royalty. However, good faith claimants must exercise the right to purchase within 90 days after the land commissioner rules that a vacancy exists. The purchaser of such a tract need not divide with the state any bonus he may receive for selling the lease.

The vacancy hunter must file his application in the county where the land is located and in the event a lawsuit ensues, that also must be filed in the county where the land is located. The vacancy hunter must also pay $100 for filing with the land commission and must post funds to allow the land commission to hire a surveyor to determine whether the vacancy exists.

If sale is made to the vacancy hunter, ⅛ of mineral is reserved to the state and it may lease a 13/16 mineral interest. The vacancy hunter's royalty share is 1/24, if the good-faith claimant buys the tract, and the vacancy hunter may purchase only if the good-faith claimant has failed to exercise his purchase rights.

Applications now pending, and not granted, are to be voided unless a suit is pending, unless such application be granted by the commissioner within nine months of the effective date of the proposed act. However, in another section of the bill, there is a provision that the act shall not apply to any application on file at the time the act would become effective.

The bill also provides that vacancies found in tracts which date back to the Mexican land grants are not considered vacancies if the land found is covered by the Mexican grant, but not by state patents.

The bill also provides that the lessee can gain no acreage through the inclusion of a "mother Hubbard" clause in his lease contract. He may, by this contract, obtain only as much acreage as he actually paid for according to the lease provisions.

### *Suit filed to clarify Indiana's oil lease law*

Superior Oil Company last week filed a friendly suit against the New Harmony Realty Company in the circuit court at Mt. Vernon, Indiana, to gain clarification of Indiana laws governing oil leases and drilling. Hearing was set by Judge Herdis Clements for April 18, and the action is expected to be carried to the appellate court.

The New Harmony company, of which Judge Charles I. Dawson, Louisville, Kentucky, is president, leased 3702 acres to the Superior on June 18, 1938. On March 9, Judge Dawson advised the Superior company that rental payments would not be accepted when due on June 18, this year, and that the oil company would be required to forfeit the leases if drilling had not been started by that date. The oil company was also advised that the realty company would accept no move on the part of Superior to commence operations after June 18.

The Superior company seeks to force acceptance of the rental payments by the New Harmony company to keep the leases in force. Charles Dore, Houston, Superior vice president, and W. D. Wagner, Houston, secretary, filed the suit.

# Allowable Picture

**Texas will produce 1,439,113 barrels daily during April . . . Restraining order against Texas April allowable quota is extended for another ten days**

### *Texas allowable, April 12, 1,439,113 barrels daily*

Texas' basic allowable on April 12 totaled 1,703,638 barrels for each of the 25 days wells are to produce during April, or a total of 42,590,950 barrels for the month, according to the Texas Railroad Commission. However, 116,493 barrels have been exempt from shutting down on each of the five Sundays due to water conditions. Thus, these exemptions raise the total for the month to 43,173,415 barrels, which results in an allowable production that averages 1,439,113 barrels for each of the 30 days in the month. This is 26,213 barrels in excess of the Bureau of Mines estimate of Texas' consumer demand. This is 69,892 barrels more than the March allowable, when there were 8 shutdown days instead of the present five. This increase is due primarily to the removal of the Saturday shutdown, since allowables assigned to every district, but the Panhandle, have been reduced by commission orders.

The table below shows the comparative figures, by districts, for March 14 and April 1:

| District | Allowable March 14 (Barrels) | Allowable April 1 (Barrels) |
|---|---|---|
| Southwest Texas. | 336,902 | 299,977 |
| Gulf Coast..... | 285,200 | 255,455 |
| East Central..... | 121,437 | 121,066 |
| East Texas..... | 522,603 | 522,339* |
| West Central.... | 67,311 | 66,818 |
| West Texas..... | 265,654 | 233,754 |
| North Texas..... | 117,654 | 115,243 |
| Panhandle ..... | 88,996 | 88,996 |
| | 1,805,757 | 1,703,638 |

*East Texas allowable on April 1.

In addition, the commission has exempt from the Sunday shutdown many of the fields which were exempt under the old order, because of excessive water or other peculiar operating conditions. These fields have an allowable of approximately 78,939 barrels daily. Last month the exemption totaled about 114,000 barrels per day, and it is possible that after further adjustments are made during April, the amount of exempt oil will approach this figure. It should be noted that this exempt oil does not include the allowable for Rodessa field, which is permitted to produce 7 days a week under the statewide order.

The United States Bureau of Mines estimated consumer demand for Texas oil during April to be 1,412,900 barrels daily, which is 19,805 barrels below the current allowable. It is expected that accretions to the total allowable, resulting from the completion of new wells during the latter part of April, may increase the total figure approximately 10,000 barrels daily. Thus Texas will be producing between 25,000 and 30,000 barrels in excess of the figure reported by the Bureau of Mines.

It was originally estimated that lifting the Saturday shutdown would result in raising the daily allowable some 200,000 barrels, but because of the cuts ordered, principally in West Texas, Southwest Texas and the Gulf Coast, the new figure is nearer the bureau's estimate than was anticipated.

### *Texas commission asks dismissal of suit*

Members of the staff of the attorney general of Texas on April 14 filed two motions in federal district court at Houston in the injunction suit brought by Harrison Oil Company and J. S. Abercrombie against the Texas Railroad Commission attacking oil production allowables in five Gulf Coast oil fields.

In one of the motions the state's attorneys asked that the suit be dismissed on the ground that a revised schedule raised allowables and made the issues of the suit moot. In the other motion, they asked for postponement of the taking of depositions from witnesses in the case until April 20, on the ground that the railroad commission would hold a statewide proration hearing on April 17.

Federal District Judge T. M. Kennerly granted the postponement of taking of depositions, but did not act on the motion for dismissal of the injunction suit.

Judge Kennerly on April 13 extended for 10 days a restraining order issued April 4, which forbade application of the severe Texas allowable cuts on March 30 to Old Ocean, Manvel, Markham, Pierce Junction, and Placedo fields.

The order was extended although the commission granted higher allowables to these and other fields on April 7. In granting the extension Judge Kennerly stated the confiscatory conditions that caused him to issue the order originally still existed.

The original restraining order, granted in response to a request by J. S. Abercrombie and Harrison Oil Company for an injunction against the Texas Railroad Commission's action in slashing Gulf Coast and South Texas allowables to the bone, prevented commission employees from enforcing any order subsequent to that of March 15, excepting the order of March 21 which lifted Saturday shutdowns. The plaintiffs proceeded with the court action although most of the allowable reduction was restored to the five fields before the restraining order became effective.

### *Gulf Coast independents contemplate organization*

Texas Gulf Coast independent oil operators made rapid strides toward formation of an association last week. The idea, given impetus by the April 1 reduction in the sector's allowable, found most of the operators in a receptive frame of mind and formal adoption was thought to be only a few days off. Although definite organization plans had not been announced sponsors of the plan outlined the benefits to be expected and enlisted the support of operators, and of the individual field organizations already in existence.

An attractive feature of the union was the fact that it would save 300 or 400 operators the time and expense of frequent trips to Austin, as a central committee would place before the Texas Railroad Commission the necessary technical information. The association as now planned would deal with problems affecting the Gulf Coast area generally, but would be available to help the organizations now existing in several Gulf Coast fields.

Guiding hands were those of M. C. McGehee, Jr., president of Texas Gulf Producing Company; E. M. Funkhouser, Woodley Petroleum Company; and Ralph Johnston. A meeting was held April 10 by the operators of the Fairbanks and Satsuma fields, Harris County, to start a drive to compile technical data to submit to the commission in justification of higher allowables.

### *Expect more details at Texas hearing April 17*

The Texas statewide proration hearing, scheduled for Austin on Monday, April 17, promises to bring out some unusual features, in that it appears likely more detailed information relating to particular fields will be filed than has been turned in for several months. This change in tactics is caused by the action of the Texas Railroad Commission in reducing materially allowables assigned to several fields and then requiring operators to show that a higher allowance was proper before granting an increase.

Last week Commissioner Jerry Sadler complained that operators were not showing the proper spirit of cooperation and protested against operators running to the courthouse because they were dissatisfied with commission orders.

Apparently he referred to the Harrison and Abercrombie suit attacking the Old Ocean order, and he inferred that proper adjustments would be made so far as he was concerned if the data was presented to the commission. In a prepared statement he said:

"On April 17, the Texas Railroad Commission will hold a statewide oil proration hearing in Austin of considerable importance, and the oil industry should send men to this meeting to participate and to submit information that will assist the commission in determining not only the allowables for May but for the future of the industry itself. All should turn their shoulders to the wheel and deal with the issue as a statewide problem, for such is the commission's problem. Expert advice, information and testimony are needed in the place of criticism, for evidently we are at the cross-roads with serious phases to be dealt with, and federal supervision just around the corner unless there is complete cooperation.

"The oil industry and its representatives should consider a few outstanding facts. In February of this year underproduction amounted to 1,222,361 barrels, which the operators of this state should have had, and March will prove about the same result. There were 60,518 barrels of allowable of leases that failed to report. The percent underproduced in January was 3.44 and in February 3.30. Lease storage decreased 25,315 barrels in February. In February there was a total of 126 operators who failed to report. These figures do not show cooperation.

"While it is an economic truth that it costs more to drill a well 8000 or 10,000 feet deep and that as a consequence such operators may have to have more allowable in order to pay out, let someone point out why this should operate against an operator who sunk a well but 1000 feet deep? The first operator, the deep drilled, realized before he started what he would be up against, and wants the state government to help him out, and it assuredly has, to the detriment of the operator who was not required to use such a large financial outlay. But both of them are in the oil business and both are entitled to the protection and cooperation of the commission, and this is a problem on which operators, engineers and economists should throw some light.

"We receive oil from Louisiana which has always been lukewarm over proration and there is no proration law whatever in California, Illinois and some other states. The interstate compact is a splendid theory and it is a pity it doesn't work, or at least work to such extent that Texas could get some benefit out of it. There is South Texas oil right now being shipped to Canada for processing, when that job could be done here, adding to payrolls and helping out generally. Because the East Texas field was a pioneer in big production and proration, then only an experiment, it has been the victim of conditions that some other fields did not have to experience. No one may be to blame for it, but certainly some corrections should be made. Certainly the oil industry is big enough and has enough big men in it not to rush to the courthouse every time they are dissatisfied.

"At nearly every commission meeting most of the fields ask for increases in allowable, and at the same time fear overproduction will hurt the market. So unless we are careful the bird that lays the golden eggs will be killed in a useless contest which has criticism as its keystone."

### *California votes on proration committee*

With ballots countinuing to come into the statistical offices of J. R. Pemberton, oil umpire for the central committee of California oil producers, results of the annual election of field committees and the central committee are expected to be known by April 17.

According to the present plan, the new central committee will hold its first meeting Wednesday, April 19. The personnel of the oil umpire worked last Saturday and Sunday to complete a check of more than 1700 ballots that were mailed to all California producers. The re-election of Lawrence Vander Leck as chairman of the central committee and the return of most of the present members of this group is generally predicted.

A 100 percent vote is expected from most of the state's smaller oil fields, while a better than 50 percent vote is expected in a majority of the other fields, something that has not occurred in previous elections.

### *Compact renewed*

The Texas senate has passed and sent to the governor the bill extending the Interstate Oil Compact Commission for two years.

# Market Situation

**Markets continue generally steady . . . Gasoline is firm, but crude outlook somewhat disturbed by increased production from Illinois and Texas wells**

### *Oil industry's markets are generally steady*

The markets of the oil industry are generally steady and they promise to remain that way in coming weeks.

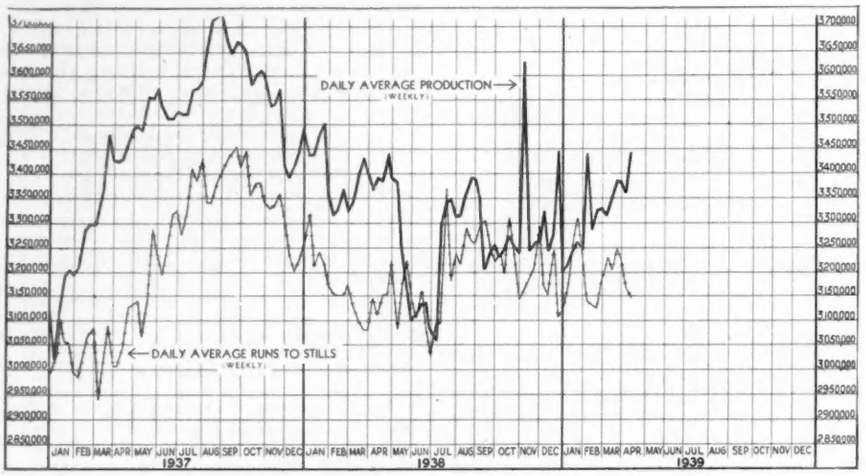
The crude oil markets are being disturbed to some extent by overproduction in California, Illinois, and Michigan and by the lack of assurance that national production will be held within national demand henceforth. The unsettled proration situation in Texas gives rise to some anxiety, although the state so far has held output within market demand. The April 17 hearing of the Texas Railroad Commission is awaited with interest, as it may give some indication of what to expect in May in Texas proration.

#### Gasoline Market Firm

The markets for refined products have shown varying trends. Gasoline prices have made some further gains at Mid-Continent refineries, as supplies have been closely held, while consumption has proved comparatively good. In some instances, refiners have further advanced their minimum tank car quotations ⅛ cent a gallon.

Despite some recent improvement, however, gasoline tank car prices are

## United States Crude Oil Production and Refinery Runs




about ½ cent a gallon lower than at this time last year. Thus there is much room for further improvement in the wholesale gasoline market. Retail prices of gasoline are similarly depressed.

Although the gasoline inventory on hand currently is considerably more moderate than the supply held a year ago, it is estimated that present stocks are around 7,000,000 barrels larger than economically desirable. Any progress toward liquidating that surplus, through strict curtailment of refinery runs, might be expected to react favorably on the gasoline market.

In the week ended April 8 the industry was fairly successful in holding down refinery runs of crude oil. Consequently, gasoline production was reduced, and a substantial withdrawal of gasoline from storage was made.

### Fuel Oil Markets

Although prices of light fuel oils have sagged in recent weeks, the declines have reflected the waning of the heavy consuming season, and those oils still occupy a good statistical position. Although demand for them has been expanded, the present inventory is only about the same as that held a year ago.

The markets for heavy fuel oils meanwhile remain generally firm, as industrial activity is proceeding at comparatively high levels, resulting in good demand for the oils used as fuel by industry.

## *Refinery runs moderate but crude output high*

Moderate operations at the refineries but loosened control of crude oil production were reflected in the latest weekly statistics of the oil industry.

Decreases were shown in refinery runs, gasoline production, gasoline stocks, and gas and fuel oil inventories in the week ended April 8, but crude oil production was up sharply, to a level in excess of indicated market demand.

### Crude Output Up

The production of crude averaged 3,443,900 barrels daily for the week, which was 85,700 barrels a day more than in the previous week. The sharp increase resulted primarily from the raising of Texas allowable production as of April 1. At the new level, the output was about 10,000 barrels a day above market demand, as estimated for April by the Bureau of Mines. It was 1.6 percent larger than in the corresponding week last year.

### Refinery Runs Downs

Refinery runs of crude oil were reduced 25,000 barrels daily for the week of April 8, having averaged 3,145,000 barrels daily. That was 1.1 percent more than the runs in the corresponding week last year, which averaged 3,110,000 barrels daily.

### Gasoline Situation

Having totaled 9,389,000 barrels in the week ended April 8, gasoline production was down 22,000 barrels from the 9,411,000 barrels of the week before.

Gasoline stocks were reduced 664,000 barrels during the week, having come down to 86,613,000 barrels. The latter figure was 6.1 percent lower than the total of 92,279,000 barrels of gasoline on hand one year previously.

Stocks of gas oil and fuel oil were further reduced about 1,700,000 barrels in the week ended April 8, having been brought down to 126,199,000 barrels. At that level, they were only 8/10 of 1 percent larger than on the comparable date last year, when the inventories totaled 125,190,000 barrels.

## *Price changes include gains for gasoline*

Prices in the oil industry have undergone some changes since a week ago, those of gasoline having shown some additional improvement in the Mid-Continent refining districts, while quotations on light fuel oils have been further lowered, with the consuming season drawing to a close.

Heavy fuel oils remain steady, with prices unchanged. Kerosene prices also have not been altered lately.

Two purchasers of crude in the Birk City pool of Henderson and Daviess Counties, Kentucky, made varying price reductions last week, resulting in three posted prices with a 25 cents a barrel range prevailing in the pool. Aetna Oil Service on April 8 reduced the price on its takings from $1.05 to 80 cents a barrel. The action was followed four days later by a 5 cents a barrel reduction, to $1.00 a barrel, by Fordsville Gathering Lines, Inc. R. Hal Compton Crude Oil Purchasing Company, third purchaser in the pool, announced that no reduction from the $1.05 per barrel posted price was contemplated immediately.

Two purchasers of Bradford crude last week announced purchases would be reduced May 1 from 100 percent to

## Trends of United States Production and Stocks

**Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports**

| WEEK ENDED | Crude Oil Production (Barrels Daily) | Crude Runs to Stills Barrels Daily | Crude Oil Stocks (Barrels) | Gasoline Stocks (Barrels) | Gas & Fuel Oil Stocks (Barrels) |
|---|---|---|---|---|---|
| September 25, 1937 | 3,666,300 | *3,455,000 | 307,974,000 | 65,620,000 | 116,472,000 |
| March 19, 1938 | 3,433,550 | 3,080,000 | 306,380,000 | *93,192,000 | 122,067,000 |
| March 26 | 3,405,600 | 3,080,000 | 307,557,000 | 92,858,000 | 122,969,000 |
| April 30 | 3,396,150 | 3,215,000 | 307,147,000 | 91,339,000 | 128,270,000 |
| May 28 | 3,098,650 | 3,150,000 | 301,583,000 | 87,946,000 | 134,315,000 |
| June 25 | 3,083,900 | 3,025,000 | 293,463,000 | 82,412,000 | 137,801,000 |
| July 30 | 3,316,400 | 3,240,000 | 288,514,000 | 76,864,000 | 144,294,000 |
| August 27 | 3,388,500 | 3,255,000 | 285,029,000 | 71,754,000 | 146,926,000 |
| September 24 | 3,251,150 | 3,220,000 | 280,278,000 | 68,605,000 | 150,468,000 |
| October 1 | 3,231,800 | 3,235,000 | 280,852,000 | 68,602,000 | 151,759,000 |
| October 29 | 3,237,500 | 3,145,000 | 275,824,000 | 67,590,000 | 153,719,000 |
| November 12 | 3,243,250 | 3,180,000 | 273,394,000 | 67,551,000 | *154,666,000 |
| November 26 | 3,260,900 | 3,295,000 | 270,563,000 | 68,628,000 | 153,634,000 |
| December 10 | 3,245,100 | 3,150,000 | †269,509,000 | 68,587,000 | 150,779,000 |
| December 31 | 3,201,450 | 3,115,000 | 273,024,000 | 71,695,000 | 144,823,000 |
| January 28, 1939 | 3,248,250 | 3,235,000 | 271,763,000 | 77,279,000 | 139,349,000 |
| February 25 | 3,328,850 | 3,185,000 | 271,758,000 | 84,597,000 | 133,671,000 |
| March 4 | 3,314,850 | 3,230,000 | 272,971,000 | 85,379,000 | 131,930,000 |
| March 25 | 3,382,350 | 3,225,000 | 273,915,000 | 87,561,000 | 129,915,000 |
| April 1 | 3,358,200 | 3,170,000 | ..... | 87,277,000 | 127,893,000 |
| April 8, 1939 | 3,443,900 | 3,145,000 | ..... | 86,613,000 | 126,199,000 |
| April 9, 1938 | 3,392,350 | 3,110,000 | ‡308,237,000 | 92,279,000 | 125,190,000 |
| Change in past year | +1.6% | +1.1% | ..... | —6.1% | +0.8% |

* All time peak. † Lowest for 17 years. ‡ Stocks, April 2, 1938.

90 percent of the daily average amounts named in their contracts with producers. Companies taking the action were Tide Water Associated Oil Company and South Penn Oil Company.

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below, 3⅞ to 4¼ cents a gallon; 63 to 66 octane, 4⅛ to 4⅜ cents; 67 to 69 octane, 4⅜ to 4¾ cents; 70 to 72 octane, 4⅝ to 5 cents.

Corresponding prices in the Chicago market were 3¾ to 4⅛ cents, 3⅞ to 4⅛ cents, 4 to 4½ cents and 4¼ to 4⅞ cents.

In East Texas, 60-62, 400 end point gasoline was priced generally at 4¼ to 4⅜ cents a gallon.

Natural gasoline, grade 26-70, was selling in the Mid-Continent markets, f.o.b. refineries at 2½ cents a gallon, and sales were reported at that same price f.o.b. Breckenridge, Texas.

Kerosene prices f.o.b. Oklahoma refineries ranged from 3⅞ to 4¼ cents a gallon for the 41-43 water white grade, and from 4 to 4⅝ cents for the 42-44 water white grade; and corresponding prices in the Chicago market were 3½ to 4⅛ cents and 3⅝ to 4⅜ cents.

Prices of light fuel oils were off ⅛ cent a gallon in some instances last week, but heavy oils were unchanged. In the Chicago market range oil was priced from 3⅜ to 4 cents a gallon. The No. 1 white oil was priced from 3¼ to 3⅞ cents, and No. 1 straw from 3¼ to 3½ cents. No. 2 straw was 3⅛ to 3½ cents. No. 3 oil was 3 to 3¼ cents. No. 5 oils were 57½ to 70 cents a barrel. The No. 6 oil was quoted at 35 to 45 cents.

# Crude Production

## Increase of 50,090 barrels brings United States daily average up to highest level of the year

OUTPUT of the United States oil fields during the week ended April 15 set a high for the year at 3,457,480 barrels. Most major areas gained or held the pace of the preceding week as readjustments in Texas swelled the daily average 50,090 barrels over that for the week prior. The Bureau of Mines estimate of demand for domestic crude was 23,480 barrels short of actual output as seasonal quickening of demand stimulated production.

### Texas Responsible

Texas produced 1,393,900 barrels daily in tardy response to the heightened April allowables, adding 47,700 barrels to the preceding week's average but falling 45,213 barrels short of state allowable and 18,800 under bureau recommendation.

California lifted 632,300 barrels daily to exceed the preceding week's production by 7000 barrels, state allocation by 57,300 barrels, and federal forecast by 40,300 barrels.

Production in Oklahoma dropped to 436,475 barrels daily; an average level 15,775 barrels under that of the previous week and 36,825 barrels under bureau recommendation but 8475 barrels in excess of state allowable.

Kansas yielded 169,950 barrels daily, registering a 16,150-barrel gain over the preceding week and overstepping state allowable by 13,100 barrels, bureau prediction by 17,250 barrels.

Louisiana produced 266,550 barrels daily; 2450 barrels less than the daily average for the week before but 4550 barrels over bureau recommendation and 8630 barrels over state allocation.

Among other producing areas the only noteworthy change was a slight increase in Eastern States production at 267,080 barrels, despite a substantial drop in output from new Illinois pools.

## United States Crude Oil Production

### Estimates Compiled by THE OIL WEEKLY

| DISTRICT OR STATE | Bureau of Mines Recommendation (Daily in April) | State Allowable April | BARRELS DAILY FOR WEEK ENDED April 15 | April 8 |
|---|---|---|---|---|
| TEXAS— | | | | |
| Texas Panhandle | | | 73,050 | 74,400 |
| North Texas | | | 86,850 | 93,800 |
| West Central Texas | | | 32,950 | 34,200 |
| West Texas | | | 214,250 | 200,200 |
| East Central Texas | | | 105,450 | 98,700 |
| East Texas Field | | | 447,300 | 439,500 |
| South Texas | | | 229,350 | 210,600 |
| Texas Gulf Coast | | | 204,700 | 195,100 |
| Total Texas | 1,412,700 | 1,439,113* | 1,393,900 | 1,346,500 |
| CALIFORNIA— | | | | |
| Long Beach | | | 49,800 | 49,200 |
| Santa Fe Springs | | | 28,800 | 27,600 |
| Huntington Beach | | | 30,200 | 28,800 |
| Dominguez | | | 21,500 | 22,500 |
| Ventura Avenue | | | 32,700 | 33,100 |
| Midway-Sunset | | | 57,000 | 49,800 |
| Kettleman Hills | | | 57,000 | 54,200 |
| Wilmington | | | 88,800 | 88,200 |
| Others | | | 266,500 | 271,900 |
| Total California | 592,000 | 575,000† | 632,300 | 625,300 |
| OKLAHOMA— | | | | |
| Oklahoma City | | | 101,675 | 114,500 |
| Seminole Area | | | 101,300 | 101,775 |
| Fitts | | | 28,350 | 30,325 |
| Others | | | 205,150 | 205,650 |
| Total Oklahoma | 473,300 | 428,000 | 436,475 | 452,250 |
| LOUISIANA— | | | | |
| North Louisiana | | | 73,300 | 73,450 |
| South Louisiana | | | 193,250 | 195,550 |
| Total Louisiana | 262,000 | 257,920 | 266,550 | 269,000 |

| DISTRICT OR STATE | Bureau of Mines Recommendation (Daily in April) | State Allowable April | BARRELS DAILY FOR WEEK ENDED April 15 | April 8 |
|---|---|---|---|---|
| KANSAS— | | | | |
| Burrton-Haven | | | 8,625 | 8,775 |
| Russel County | | | 24,500 | 23,650 |
| Silica | | | 10,000 | 9,850 |
| Others | | | 126,825 | 111,525 |
| Total Kansas | 152,700 | 156,850 | 169,950 | 153,800 |
| NEW MEXICO | 115,300 | 109,700 | 111,050 | 109,650 |
| MICHIGAN | 48,300 | | 58,450 | 58,250 |
| ARKANSAS | 53,300 | | 53,375 | 54,200 |
| MOUNTAIN STATES— | | | | |
| Wyoming | 50,000 | | 51,000 | 54,250 |
| Montana | 15,300 | | 13,650 | 13,550 |
| Colorado | 5,000 | | 3,700 | 3,850 |
| Total Mountain States | 70,300 | | 68,350 | 71,650 |
| EASTERN STATES— | | | | |
| Pennsylvania Grade | | | 71,950 | 68,300 |
| Southern Illinois (New Pools) | | | 155,550 | 159,950 |
| Illinois-Indiana (Old Pools) | | | 10,130 | 8,490 |
| Others, Eastern | | | 29,450 | 30,050 |
| Total Eastern States | 254,100 | | 267,080 | 266,790 |
| Total United States | 3,434,000 | | 3,457,480 | 3,407,390 |

* Daily average, considering Sunday shut-downs and seventh day exemption at Rodessa.

† Recommendation of Central Committee of California Oil Producers.

# A. P. I. Pacific Meeting

**Howard C. Pyle elected chairman of American Petroleum Institute's Pacific Coast district . . . Technical program hears a number of papers.**

H. C. Pyle, Union Oil Company, Los Angeles, was elected chairman of the Pacific Coast Division of the American Petroleum Institute, Division of Production, at its twelfth annual meeting on April 12.

Other new officers are R. N. McMaster, Chanslor Canfield Midway Oil Company, Los Angeles, vice chairman, Los Angeles Basin; H. C. Stone, The Texas Company, Santa Paula, California, vice chairman, Coastal district; N. W. Morris, Standard Oil Company, Taft, California, vice chairman, San Joaquin Valley; W. G. Corey, Pacific Gear and Tool Company, Los Angeles, treasurer, and D. S. Kilgour, California Oil and Gas Association, Los Angeles, secretary.

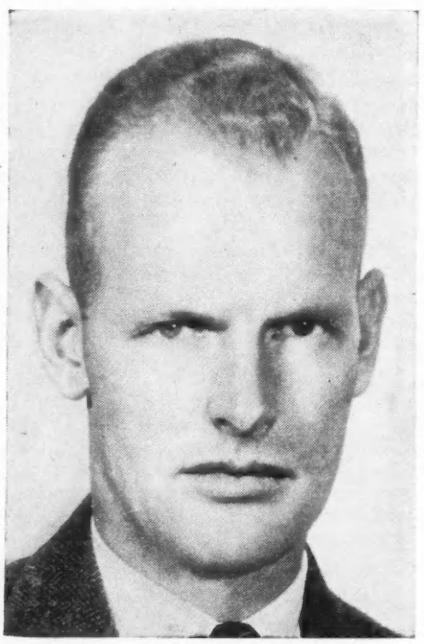
L. L. Aubert, Bankline Oil Company, Los Angeles, was appointed chairman of the Advisory Committee. Members of the committee include Bruce Barkis, independent operator, Long Beach; A. H. Bell, Continental Oil Company, Los Angeles; E. C. Bolton, Ohio Oil Company, Los Angeles; L. A. Cranson, Honolulu Oil Corporation, Ltd., San Francisco; J. F. Dodge, University of Southern California, Los Angeles; E. G. Gaylord, Standard Oil Company of California, San Franciso; W. H. Geis, Union Oil Company, Los Angeles; Joseph Jenson, Tide Water Associated Oil Co., Los Angeles; R. L. Keyes, The Texas Company, Los Angeles; W. M. Lacey, California Institute of Technology, Pasadena; Frank A. Morgan, Richfield Oil Corporation, Los Angeles; R. C. Patterson, U. S. Geological Survey, Taft, California; H. T. Wyatt, Shell Oil Company, Los Angeles; H. L. Heater, Baroid Sales Corporation, Ltd., Los Angeles; C. P. Watson, Seaboard Oil Company, Los Angeles; Wm. Keck, Jr., Superior Oil Company, Los Angeles; E. B. Hall, Hall-Baker, Inc., Los Angeles; M. A. Machris, Wilshire Oil Company, Inc., Los Angeles; H. P. Grimm, Bolsa Chica Oil Corporation, Los Angeles; E. E. Pyles, Hancock Oil Company, Long Beach, and H. C. Pyle, Union Oil Company, Los Angeles, as ex-officio member.

Abstracts of most of the papers presented at the meeting follow:

### The Evolution of Proration

By Ernest O. Thompson,
Chairman, Interstate Oil Compact Commission
Member, Railroad Commission of Texas

You are all aware that the per well revenues are steadily being reduced, and if this trend continues there will come a time when it will no longer pay to drill new wells. I have here a table



HOWARD C. PYLE

giving the figures for the state of Texas for the years 1937 and 1938, and have estimated for 1939.

The average well cost, including lease equipment, is around $25,000. From the $5,094 must be deducted the one-eighth royalty, operating costs, including taxes. If one should subtract a five percent interest charge, the balance, if continued, would pay the well out in between 10 and 15 years.

I heard a man testify under oath that the well which he was going to drill would, under present rates, require 12 years to pay out.

What I am saying is—bluntly—that the oil business is putting too much money into the ground. An important cause of this is the very large amount of credit available to the producer.

The oil business, however, has gone through a peculiar cycle. I can well remember when banks looked with suspicion on loans for the purpose of drilling oil wells. Beginning about 1930 the banks began to increase their oil loans. As production, through proration, became more stable, the volume of such loans increased. This history has built up what is now almost a tradition: that oil paper is safe.

It has been urged that the reserves will, in time, become depleted, and that oil will increase in price. A few short years ago—in 1925—there was a great hue and cry over the land that we were about to run out of petroleum. It was then estimated that our reserves were about five billion barrels. Scarcity was impending.

Since that date we have consumed 11½ billion barrels of oil. Today we have about 17½ billion barrels of oil in reserve in the ground. We are able to obtain almost twice as many gallons of gasoline from a barrel of oil as in 1925. Incidentally, the consumer paid 29 cents a gallon for gasoline in 1930, and no tax. Today he gets a far superior gasoline at 14½ cents a gallon, including tax.

There has been a 50 percent increase in consumption. I do not expect to see an exhaustion of petroleum.

The fat is in the fire after our money is already in the ground. Unless we very quickly and intelligently adjust our spending in unnecessary and needless wells spaced too closely together, we will never get out of the ground what we have put into these holes.

Whether you like it or not, any calculations on oil in 1939 must make room for 200,000 barrels daily of Illinois oil. I am told there are more Texas and Oklahoma auto license plates in the Illinois fields than Illinois plates. We must be patient with new oil states about passing conservation laws. Arkansas, recently regarded as a threat, now has one of the best statutes of any state.

Our real oil problem probably will come in all its fury in 1940 unless we very promptly make some changes in our present plan of drilling wells so close together. We are still enjoying the great increase in demand caused by a 27 percent boost in exports over 1936.

It looks to me like we are going to have a weak oil market for a long time to come. It is a buyers' market. We have got to average down our costs by spreading them thinner over our oil reserves. I have heard talk of some Texas refiners getting ready to ship some tankers of gasoline to Seattle and Portland. These are uneconomic movements—taking coals to Newcastle.

I am of the opinion that our foreign markets will grow weaker unless Japan continues her attack upon China or unless there should be a general war in Europe. Venezuela, other South American and European countries are going to capture a lot of our foreign markets for oil. They are going to produce oil in a big way.

We had best get together under the Compact and work out together our common problem on the basis of reserves and home markets.

| | Total Revenue | Total Barrels | Number of Wells | Per Well Allowable | Price | Per Well Revenue |
|---|---|---|---|---|---|---|
| 1937 | $594,500,000 | 510,318,000 | 77,360 | 19.4 | 1.16 | 7,685 |
| 1938 | 514,800,000 | 468,000,000 | 85,387 | 15.0 | 1.10 | 6,029 |
| 1939 | 465,600,000 | 480,000,000 | 91,400 | 14.4 | .97 | 5,094 |

### Economies of Deep Drilling In San Joaquin Valley

By JOHN F. DODGE,
Professor of petroleum engineering, University of Southern California.

"Granting the premise that the major portion of the investment in a well must be returned during its flowing and gas lift life, the problem resolves itself into one of investment, operating expenditures and probable returns to determine if under present conditions in the industry one may expect the cost of a deep well to be returned with a reasonable rate of interest upon the capital invested and if so, what length of time will be required for such returns.

"Under investment we must include:

(A) cost of acquiring land or well site upon which the well is drilled; (b) actual cost of drilling the well plus the proportionate share of the 'burden' or 'distributive group accounts' such as overhead, general office expense, engineering, land and geological departments, legal expenses, etc; (c) supplementary development expense, such as traps, tankage, collecting lines, lease roads and buildings and all other capital facilities, the cost of which can only be returned through profits from the production of the well, this group of costs likewise bearnig a burden or overhead charge.

"A flat cost of $20 per foot or $260,000 for the actual drilling of a well in the San Joaquin Valley, will be used as an illustration. To the $260,000 figure, which covers only field costs, must be added the burden or overhead group costs outlined previously. The amount of such charges and the manner in which they are handled varies with different operating companies but they are always present whether capitalized or charged to operations and represent a proper part of the cost of the well. In the writer's opinion at least 15 percent of the bare cost of drilling the well must be added to cover these costs, bringing the well cost to about $300,000.

Supplementary development expense, also a capital cost, as outlined previously, will add from 10 to 25 percent to this sum, depending on the location of the well and the amount of supplementary facilities necessary, making the total capital investment $330,000 to $375,000 or say $350,000 as an average figure, per well. In this summation it has been assumed that the well is not drilled on fee property but upon a lease that has been acquired at moderate expense, but at royalty rates ranging from one-fifth to one-fourth and more and averaging perhaps one-fourth or 25 percent on wells during their flowing life.

"Present curtailment plans allow a maximum monthly production of 9000 barrels, or 300 barrels daily in some fields in the San Joaquin Valley and in others 250 barrels daily or even less. Assuming the maximum figure for purposes of calculation, the first year's operation will result about as follows:

| | |
|---|---|
| Total production .....108,000 barrels | |
| Lessee's oil 75 percent .81,000 barrels | |
| Estimated value of production of $1.40 per barrel allowing market price for oil at 8 cents per barrel additional for gas and gasoline value..... | $113,400.00 |
| Production cost $7500 per well year ..... | 7,500.00 |
| Leaving an apparent net of | $105,900.00 |
| Interest on a well investment of $350,000 at 6 per cent . ..... | $ 21,000.00 |
| Net return applicable to return of capital investment . ..... | $ 84,900.00 |

"Upon such a basis and disregarding for the moment such eventual possibilities as the removal of curtailment or increased oil prices, it would require over four years flowing at 300 barrels per day, or a recovery of over 430,000 barrels for the well to return its capital cost with six percent interest, admittedly a low rate for an enterprise as filled with hazards as oil production from depths of over two miles.

"It is not the intention of the writer to make the landowner the villain but it might be pointed out that even in the so-called 'A' lease while the operator is getting his money back with 6 percent interest, the landowner has received probably in excess of $150,000 in royalties with no risk and on an investment representing, even on a 20 acre spacing, probably not in excess of $1000. Therefore, it is obvious to the writer that until the demand for oil more nearly approaches the supply, drilling should be reduced to a minimum consistent with lease obligations, particularly in the deeper fields with thin productive sands. Efforts should be made to obtain modifications of drilling requirements and offset situations should be avoided wherever possible and in every way drilling should be deferred until the need for curtailment has passed. New leases, when negotiated, should avoid the customary 'one string' or 'two strings' obligations and stipulate completions only. Drilling time has been reduced even in deep fields to a point where a string of tools operating continuously will complete from two to four times as many wells as it did 10 years ago, but the clause is blithely and blindly included in leases today without taking changed conditions into consideration.

### Geothermal Gradients in California Oil Wells

By R. W. FRENCH
Petroleum engineer,
Continental Oil Company

"Subsurface temperatures have recently assumed increased importance in both theoretical and practical fields of applied petroleum engineering. The use of modern phase-equilibria concepts, volumetric reservoir relations, and thermodynamic analyses is dependent upon temperature. An aggressive study of carefully-secured earth temperatures should also advance the possibilities of geological correlation, information as to effect on seismic velocities and movement of subterranean water. Temperature considerations are primary factors in the modern technique of drilling mud treatment, chemical clean-out work, cement application, and location of setting cement outside of casing. Manufacturers of tools, instruments, and materials for oil well use are constantly meeting more serious problems. Geothermal gradients are presented for most California fields with examples of typical transient phenomena."

### Economics of Gravel Packing in California

By WILLIAM A. CLARK
Petroleum engineer,
The Texas Company

"Gravel packing of oil wells has progressed out of the purely theoretical stage and now is being recognized as an advancement in the completing of certain types of oil wells, thus it is possible to present actual comparative drilling and production costs of gravel-packed versus conventionally completed wells.

"During 1938 operating costs on individual wells showed a substantial advantage in favor of those wells which are gravel-packed as compared to conventional wells of similar structural and zonal position. The 13 conventional wells included in the Los Angeles Basin group have been producing for an average period of 21 months per well, as compared to fourteen months for the three gravel-packed wells. The two conventional wells shown as free from sand trouble were initially completed by means of special pressure regulating devices, this method necessitating considerable experimentation and supervision at a cost not determinable. It is interesting to note that in each field the gravel-packed group of wells have produced the most oil per well during 1938. In the Northerly group of the San Joaquin Valley production varies so widely between wells that there can be no fair comparison. Among the reasons explaining the greater production may be listed the following: (1) Gravel-packed wells may pump for long periods before pulling; (2) Better pump efficiencies on account of inserting the pump deep within the liner in the gravel-packed wells, a practice that is hazardous on account of sanding-up in conventional wells; (3) Possibly improved productive efficiencies from the zone due to the large diameter hole in the gravel-packed wells; (4) In the West Side area of the San Joaquin Valley, an expanding gas cap and lowering fluid level has made pumping a difficult matter due to gas lock and heaving in conventional wells when the fluid level has approached top of the zone. In the graveled wells very little trouble is encountered from the causes mentioned; the gravel prevents heaving and appears to act in part as a 'gas-separator.'

"Savings in well clean-out and pumping equipment costs for the year have materially aided the pay-out of the initial extra drilling cost incurred when gravel-packing the wells."

### Application of Drillable Material For Well Completions and Repair Work

By O. HAMMER,
Chief engineer,
Security Engineering Company

"Mechanical limitations sometimes are the important factors which determine production methods. Drillable materials permit well completion technique to be varied widely to meet certain present or future production requirements. The nature of subsurface oil well work necessitates the use of materials sufficiently strong to justify handling and service requirements; withstand erosive action of fluids and resist corrosion. Furthermore, the material must be readily drillable, possess a low specific gravity and form bit cuttings which can be circulated from the well.

"The application of drillable metal to production work varies with the particular field or well problem and the methods and procedures discussed can be expanded or modified for adaptation to specific requirements. A large number of drillable liners have been cemented in place from top to bottom and through one or more producing zones to effect exclusion of intermediate water or gas sands and obtain production by means of selective gun-perforating. This method consists of running a blank liner and discharging the cement through the bottom of the liner shoe or at a point close to the bottom while a back-pressure valve is used to retain the cement slurry outside the liner after the operation is completed. The liner setting tool is equipped with a sufficient length of 'tail-pipe' to place the lower end within five to ten feet of the back-pressure valve. When sufficient cement has been discharged, the setting tool is disconnected from the liner and the entire 'run-in' string raised a few feet. Circulation is reversed to wash away all excess cement slurry and when this operation is completed, the 'run-in' string is withdrawn from the hole. The cemented liner is then perforated at selected depths to obtain the required production, and if after flow tests have been made, it is found that water sands have not been excluded or that gas is too abundant, the entire liner can be removed with a drilling bit and sequence of operations repeated."

# Oil-World Exposition
# Drilling and Production Program

## TUESDAY, APRIL 25

**2:00 P. M.** **Convention Hall**

***Prime Movers in Oil Field Operations***

Sponsors: JOE J. KING and PROF. J. H. POUND

**"Power Requirements for Gulf Coast Drilling"**

By D. M. McCARGAR, Allis Chalmers Manufacturing Company.

**"The Diesel Engine in Oil Field Service"**

By O. A. TREIBER, Hercules Motors Corporation.

**"Maintenance and Lubrication of Bearings in Oil Field Equipment"**

By S. M. WECKSTEIN, Timken Roller Bearing Company.

A graduate of Stevens Institute of Technology. Joined Timken Roller Bearing Company 15 years ago, and now chief engineer of industrial division.

**"Positive Control of Lubricating Conditions in Diesel Engines"**

By J. M. RAVENNA and PAUL WILLIAMS, Skinner Purifiers, Inc.

Ravenna, born in New Orleans, was reared and educated in Houston. Has had wide experience in sale and servicing of oil field equipment in Southwest, and has been sole representative of Skinner Purifiers, Inc., in Texas, Louisiana, and Arkansas for the past 10 years, handling all sales and supervising all servicing operations.

Williams, after graduating from Cornell in 1914, became identified with Franklin Automobile Company, where he engaged in engineering work, and later became general service manager. Leaving that company in 1924, he joined Skinner Purifiers, Inc., and now is general manager.

**"Air Cleaners for Oil Field Engines"**

By C. C. SOWERBY, American Air Filter Company, Inc.

A graduate of University of California, 1910, served short period as railroad machinist, after which assigned to study air brakes. Later associated with Westinghouse Electric & Manufacturing Company as air brake expert until enlisting in World War. At close of war, employed by Howe Rubber Company, Buffalo, after which he joined an oil supply concern in Houston. He solicited the interest of a manufacturing firm in the need of air cleaners for the petroleum industry, and has been associated with this particular service ever since. At present is Southwestern division sales manager for American Air Filter Company.

**"Water Treatment in the Oil Fields"**

By E. F. FELLOWS, National Aluminate Corporation.

A graduate of Cornell University, 1916, was employed as steam and power engineer for various utilities and industrial plants. Joined William B. Scaife and Sons Company, Oakmont, Pa., in 1921 as construction engineer, trouble shooter and salesman. In 1927, employed by National Aluminate Corporation. One year later became assistant director of service and field manager. At present manager of the Southwestern division for the company.

## WEDNESDAY, APRIL 26

**2:00 P. M.** **Convention Hall**

***Drilling***

Sponsors: A. G. LEVY and PROF. HAROLD VANCE

**"Core Drills Applied to Oil Field Service"**

By J. A. NOYES, Sullivan Machinery Company.

After graduating from Massachusetts Institute of Technology, became connected with Sullivan Machinery Company. For a number of years, he was in charge of the Lake Superior iron and copper district, and later served as general manager of the coal mining machinery division. Upon establishment of the petroleum division of the firm, he was sent to the Mid-Continent area as sales manager, with headquarters in Dallas.

**"The Baroid High Pressure Drilling Mud Filtration Tester"**

By D. H. LARSEN, Baroid Sales Department, National Lead Company.

Born in Hollywood, Calif., in 1911. Graduated from California Institute of Technology. With Baroid Sales Department since 1936, and is in charge of research work.

**"Some Defects Found in Hard-Faced Drilling Tools and Their Remedies"**

By C. W. METZGER, Haynes Stellite Company.

Connected with Haynes Stellite Company since 1916. Pioneered the practice of hard-facing drilling tools and many subsequent improvements. Has been instrumental in improving hard-facing practice in oil fields of South America, Dutch East Indies and other foreign countries. His wide experience in mechanical work has provided insight into various mechanical problems, among which are the design and manufacture of tools used in rotary drilling. Has been district sales manager in charge of Texas, Arkansas and Louisiana for the company for 12 years.

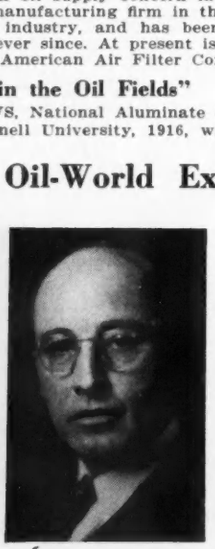
**"The Tuboscope"**

By FRITZ HUNTSINGER, Oil Field Machine & Supply Company.

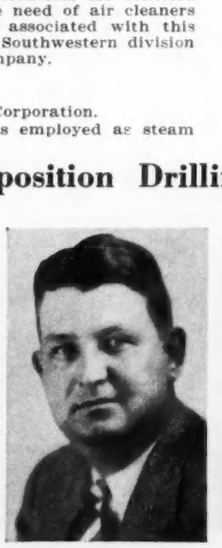
At an early age, he took up the machinist trade. Since 1925 has been actively engaged in general oil field repair work, specializing in tubular goods. He is inventor and developer of Tuboscope, and owner of Ventura Tool Company, Ventura, Calif.

## Members of Oil-World Exposition Drilling and Production Program Committee

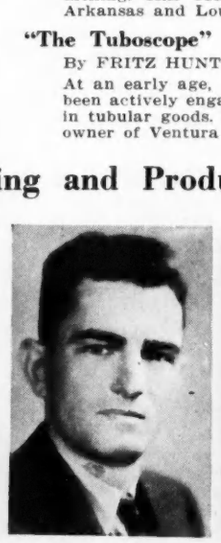
**GEO. B. CORLESS**
**Humble Oil & Ref. Co.**
**(Chairman)**



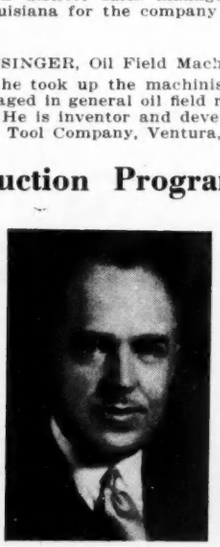
**M. ALBERTSON**
**Shell Oil Company**



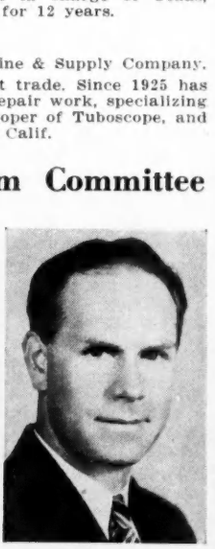
**GEORGE L. NYE**
**Tide Water Associated Oil Company**



**J. U. TEAGUE**
**Humble Oil & Refining Company**



**JOE ZABA**
**Rio Bravo Oil Company**



**JOE J. KING**
**United Gas Pipe**

**A. G. LEVY**
**Fohs Oil Company**

**H. E. DEGLER**
**University of Texas**

**BENJAMIN CRAFT**
**Louisiana State University**

**J. H. POUND**
**Rice Institute**

**H. H. POWER**
**University of Texas**

**HAROLD VANCE**
**Texas A. & M. College**

**"Resilient Materials of Construction for Petroleum Industry"**

By H. L. LAWRENCE, DuPont de Nemours & Company, Inc.

Graduated from University of Missouri. For two years engaged in industrial engineering work in E. I. DuPont de Nemours & Company, where his work was concerned primarily with application and perfection of equipment. Since 1936, has been engaged in engineering service work for the firm, dealing with the design and perfection of Neoprene products.

**"Recent Developments in Oil Well Cements"**

By J. B. ROBERTS, Lone Star Cement Corporation.

A civil engineering graduate of Texas A. & M. College. Engaged first in Texas highway construction, and later was structural engineer and superintendent of construction on commercial building activity in West Texas. In 1928 and 1929, was retained by Portland Cement Association as structural engineer. A year later, joined Lone Star Cement Corporation as sales and research engineer. At present, his efforts are devoted to research work on oil well cements.

## WEDNESDAY, APRIL 26

**7:00 P. M.** — **Convention Hall**

***Student Contest***

Sponsors: PROFESSORS BENJAMIN C. CRAFT, J. H. POUND, HOWARD E. DEGLER, HAROLD VANCE, and HARRY H. POWER.

**"Papers from Undergraduate Engineering Students"**

Papers will be limited to subjects relating to oil production, refining or uses of petroleum products. Eight cash prizes aggregating $300 will be awarded. Undergraduate engineering students from following universities will compete: University of Texas; Texas A. & M. College; Rice Institute; University of Oklahoma; Oklahoma A. & M. College; University of Tulsa; and Louisiana State University.

The A.S.M.E. scoring sheet for student competitions will be used by the three judges.

## THURSDAY, APRIL 27

**2:00 P. M.** — **Room C—Balcony**

***Controlled Directional Drilling***

Sponsors: GEORGE L. NYE and JAMES U. TEAGUE.

**"Developments and Future Trend of Controlled Directional Drilling"**

By M. E. MONTROSE, Lane-Wells Company.

Born in Gloucester, Mass., 1903. A graduate electrical engineer, he joined General Electric Company and moved to Texas in 1925, and has followed the petroleum industry ever since. Resigned in 1935 to manage Lane-Wells Company's operations in Mid-Continent, Rocky Mountain and Eastern fields. Moved to Houston in 1938 to manage operations in Texas, Louisiana, Arkansas, Mississippi and New Mexico. Also is a director of the company.

M. E. MONTROSE

C. P. COLLINS

**"Application and Procedure of Controlled Directional Drilling"**

By C. P. COLLINS, Eastman Oil Well Survey Company.

Born at Brattleboro, Vermont. A graduate of University of Oklahoma. Joined General Asphalt Company of Philadelphia in 1924, taking charge of geological and petroleum engineering work in British West Indies and Venezuela. Upon returning to the United States, joined Eastman Oil Well Survey Company as field engineer. At present is division manager of the company.

**"Controlled Directional Drilling Methods"**

By J. V. ROBINSON, Technical Oil Tool Corporation.

A graduate of Whittier College. Has had 10 years experience with drilling tools. Spent two years designing and pioneering wire line coring equipment in California, and has had two years of well surveying and supervising experience in controlled directional drilling. For the past year and a half has been manager of field operations and the development of controlled vertical drilling for Technical Oil Tool Corporation.

**"Polar Core Orientation"**

By D. C. ROBERTS and E. R. WEBB, Sperry-Sun Well Surveying Company.

Roberts graduated from Stanford University, and was employed as petroleum engineer by California State Mining Bureau from 1925 to 1928. Employed as petroleum engineer with Graham Loftus Oil Corporation, 1929. In 1930 and 1931, associated with Neal H. Anderson, oil umpire. In 1932 and 1933, acted as consulting engineer to various California oil firms. Joined Alexander Anderson organization in 1933 as sales engineer. Became petroleum engineer and consultant for California Consolidated Oil Corporation in 1936. He joined Sperry-Sun Well Surveying Company in 1937, and at present is West Coast regional manager.

D. C. ROBERTS

Webb, a graduate of Haverford College in 1932, was employed by Provident Trust Company in Philadelphia. Joined the Philadelphia office of Sperry-Sun Well Surveying Company in 1935. In August, 1937, was transferred to the Long Beach office to take charge of core orientation laboratory.

E. R. WEBB

## THURSDAY, APRIL 27

**2:00 P. M.** — **Convention Hall**

***Well Completion and Production***

Sponsors: M. ALBERTSON and JOE ZABA

**"Properties and Uses of 'Securaloy' as Applied to Oil Well Production"**

By O. HAMMER, Security Engineering Company, Inc.

**"The Gun Perforator in Oil Well Drilling-Production Problems"**

By M. E. Montrose, Lane-Wells Company.

**"Squeeze Cementing Before Production to Reduce Gas-Oil Ratios"**

By R. S. KAIL, Baker Oil Tools, Inc.

Born in Columbus, Ohio, 1904. Attended Ohio State University and the University of California, Los Angeles. Joined Baker Oil Tools in 1930 as salesman and service man. Transferred to Houston in 1936. Same year, was placed in charge of Southwest Texas, with headquarters at Corpus Christi.

In 1938, left on a trip to cover the United States with the Baker Rolling Exhibit, and so far has covered a large portion of the country.

**"New Application of Chemistry to Oil and Gas Wells"**

By P. E. FITZGERALD, Dowell, Inc.

A graduate of Ohio University. Spent considerable time with the U. S. Geological Survey, and two years in Ohio and West Virginia with Ohio Geological Survey and the Bureau of Mines. Connected with The Pure Oil Company for three years, after which time he was employed by Dowell, Inc., as research engineer.

P. E. FITZGERALD

**"Locating of Water Entries in Oil Wells by Electrical Means"**

By H. C. YARBROUGH, Yarbrough Guns Company.

Entered the oil business in 1919. Associated with Union Oil Company of California's production department for 10 years. For the past 10 years, has devoted his time to development of tools and services for the oil industry.

D. O. JOHNSON

**"Modern Beam Pumping Insures Low Cost Oil Recovery"**

By D. O. JOHNSON, The S. M. Jones Company.

After graduating from University of Minnesota, associated with Westinghou e Electric and Manufacturing Company, where he did particular studies on Diesel engines and worked on the problem of the use of electrical power in the petroleum industry. Later, joined A. M. Byers Company and specialized in oil country problems. In 1935, joined the S. M. Jones Company as manager of the field engineering department, where he has been responsible for the development of well study operations.

**"Reda Submergible Electrical Centrifugal Oil Well Pumping Unit"**

By P. E. LOYE, Reda Pump Company.

Prior to becoming vice president of Reda Pump Company, was in charge of electrical production operations of a large oil producer, conducted a consulting engineering practice engaged in the investigation of utility and industrial enterprises, and occupied various positions with electric utility companies. He graduated from University of Minnesota and Leland Stanford University.

## *Pipe line program for Houston oil show*

One complete day will be devoted by the pipe line men attending the Oil-World Exposition being held in Houston from April 24 to 29, inclusive, to technical meetings and entertainment. This program will be given on Tuesday, April 25, with meetings held in Room "C" in the Coliseum. A banquet will be held at the Houston Club at 8:00 p.m. with J. A. Neath of Humble Pipe Line Company and B. E. Hull of The Texas Pipe Line Company presiding.

The technical sessions will start at 9:30 a.m. with opening remarks by H. M. Stevenson, Humble Pipe Line Company, chairman. The first paper will be on "Maintenance of Portable Pipe Line Field Pumping Units," by N. G. Moore of Empire Pipe Line Company. This will be followed by a paper on "A Method of Arresting Pressure Surges in Discharge Piping of Reciprocating Pumps," by J. B. Harshman of Stanolind Pipe Line Company. All papers will be followed by discussions of the points brought out in the papers.

The afternoon meeting will be sponsored by the Mid-Continent Cathodic Association with Walter F. Rogers presiding as chairman and will start at 1:30 p.m. He will give the "Purposes of the Mid-Continent Cathodic Protection Association." This will be followed by a paper on "Method of Determining Whether Electrical Protection Should Be Applied to Pipe Line or Whether the Line Should Be Reconditioned," by D. B. Good of The Texas Empire Pipe Line Company. A paper on "Location and Installation of Ground Beds and the Determination of the Type of Equipment to Be Installed," by D. F. Ball, United Gas Pipe Line Company will then be presented.

Following a short recess David Harrell, Houston Pipe Line Company, will give a paper on "Operation and Maintenance of Motor Generator Sets, Rectox Units, Wind-Driven and Gas Engine-Driven Units and the Methods Used in Checking Results Obtained." The afternoon session will close with a paper on "System of Records Maintained to Combat Pipe Line Corrosion," by Frank E. Hangs of The Texas Pipe Line Company.

The program and entertainment have been arranged and will be conducted by the Pipe Line Committee of the Oil-World Exposition which consists of the following members: L. F. Scherer, chairman, technical committee, The Texas Pipe Line Company; E. L. Adams, General Petroleum Corporation; Charles Bunje, Jr., Illinois Pipe Line Company; H. D. Carmouche, Houston Pipe Line Company; E. R. Cunningham, United Gas Pipe Line Company; W. R. Finney, Oklahoma Pipe Line Company; Chas. Fitzgerald, Sinclair Refining Company; A. L. Forbes, Jr., El Paso Natural Gas Company; C. F. Guinn, Tidal Pipe Line Company; W. C. Heltzel, Stanolind Pipe Line Company; R. B. High, Shell Pipe Line Corporation; A. H. Horne, Empire Pipe Line Company; C. C. Ingram, Shell Pipe Line Corporation; E. F. Kindavater, Phillips Petroleum Company; E. A. Koenig, Magnolia Pipe Line Company; R. D. McClaran, Pure Transportation Company; Walter F. Rogers, Gulf Refining Company; H. M. Stevenson, Humble Pipe Line Company; J. C. Stirling, Stanolind Pipe Line Company; Lafe Todd, Union Oil Company of California; F. E. Warterfield, Jr., Oklahoma Pipe Line Company; E. L. Rolfs, chairman, Entertainment Section, Crutcher Rolfs Cummings Company; J. D. Brance, Brance-Krachy, Inc.; E. B. Corbett, Corbett Corporation; S. D. Day, Barrett Company; G. W. Dreyer, Gaso Pump & Burner Manufacturing Company; H. E. Hamilton, Mid-Continent Supply Company; E. Haubegger, Republic Steel Corporation; L. H. Kennon, L-K Pump Valve Company; F. L. Marsh, National Tube Company; H. Boyd Mayes, Mayes Bros., Inc.; Gray I. Morris, National Transit Pump & Machine Company; S. L. Organ, Johns-Manville; E. F. Seaman, Bethlehem Supply Company; Jay L. Speece, Gardner Denver Company; and Tom Wheatley, Tom Wheatley Company.

## *Mid-Continent district A. P. I. meeting April 18-19*

Discussion of the oil states compact by Governor Leon C. Phillips of Oklahoma will open the spring meeting of the American Petroleum Institute's Division of Production, Mid-Continent District, to be held in the Skirvin Hotel, Oklahoma City, April 18-19.

C. O. Rison, Indian Territory Illuminating Oil Company, Oklahoma City, is general chairman of the meeting. The program, arranged by a committee of which T. J. Hamilton, Phillips Petroleum Company, Bartlesville, is chairman, follows:

April 18, morning session; "The Oil States Compact," by Governor Phillips of Oklahoma; "Unitization of Oil Fields," by D. R. Knowlton, Phillips Petroleum Company, Bartlesville; "Public Relations," by Ray E. Miller, Hanlon-Buchanan, Inc., Tulsa.

Afternoon session: "Method and Application for Calculating Well Potentials," by Joe Haely, Corporation Commission of Kansas; "Safety," by Jack Savage, Mid-Continent Petroleum Company, Tulsa; "The Value of Threads," speaker to be announced.

April 19, morning session: "Economical Power for Artificial Lifting of Oil," by Fred Lichtenfield, Indian Territory Illuminating Oil Company, Oklahoma City, and W. H. Stueve, Oklahoma Gas & Electric Company, Oklahoma City; "Bottom-Hole Pumps," by S. B. Sargent, Pump Corporation, Oklahoma City.

Afternoon session: "Butane," by H. E. Chambers, Skelly Oil Company, Lyman, Oklahoma; "Cost of Oil Field Transportation, Based on Materials Hauled," by Bert Rice, Bert Rice Trucking Company, McPherson, Kansas; "Plug-Back Work in Completed Wells," by R. B. McCullar, Lane-Wells Company, Oklahoma City, and C. P. Parsons, Halliburton Oil Well Cementing Company, Duncan, Oklahoma.

Election of district officers will be held at the close of the morning session, April 19.

**Pipe Line Committee Oil-World Exposition, reading left to right: E. F. Seaman, Bethlehem Supply Corporation; Tom Wheatley, Wheatley Brothers Company; E. G. Lenzner, general manager, Oil-World Exposition; J. A. Neath, Humble Pipe Line Company; L. F. Scherer, The Texas Pipe Line Company; E. L. Rolfs, Crutcher-Rolfs Cummings, Inc.; S. L. Organ, Johns-Manville Scales Corporation; J. D. Brance, Brance-Krachy Company; J. L. Speece, Gardner-Denver Company.**

# WEEK'S DRILLING HIGHLIGHTS

### South Louisiana

Golden Meadows, Lafourche Parish, got a new shallow sand. Eola's 3000-foot southeast outpost continues drilling after logging oil shows in Sparta formation; northeast of this Avoyelles Parish field another outpost prepares to test Wilcox shows. The well which last week discovered St. Bernard Parish's first oil field will have to be worked over. Based on side-wall cores, New Iberia may have a new sand at 8970 feet.

### Indiana

Two wildcats, one in Warrick and the other in Chester County, continue promising new fields, though completion has been delayed. Prospects of extending Griffin pool, Gibson County, 1½ miles southeast were dimmed when McClosky reacted unfavorably to acid, but drilling continues.

### East Texas

Drilling in East Texas field has declined sharply, work being restricted largely to inside locations. A Henderson County Woodbine strike rated 458 barrels of salt water to 70 of oil. The Slocum area of Anderson County drew a 5284-foot failure.

### Illinois

Electrical logging caused a Jefferson County wildcat to set casing atop McClosky sand. Shelby County's first oil completion produced only 25 barrels from Benoist sand. Development continues at a rapid pace in the new Cordes and Larkinsburg pools. Confirmation of the new Clay pool was furnished by the second completion which yielded 55 barrels an hour.

### Oklahoma

Saturated Hunton lime found in an Oklahoma County wildcat north of Newalla looks capable of opening a pool. A new zone in old Chickasha pool contributed a 13 million cubic foot gas well. Crescent pool, Logan County, appears to have a new upper zone, while a Braman outpost is swabbing 10 barrels an hour. Simpson lime may contribute a new pool or zone in the Frederick area of Tillman County where a wildcat has filled with oil.

### Southwest Texas

Two outposts promise extensions 3000 feet north and 3000 feet northeast for Samfordyce, Hidalgo County. The oil producing section of Sun, Starr County, got a 7600-foot extension west. Pettus sand yielded a new pool 2 miles southwest of North Sweden field. A 3500-foot southwest extension for White Creek, Live Oak County, appears probable. Jim Wells County scored its fourth new field this year; it is 1½ miles southwest of Alfred pool. Good oil sand was found in a test 10 miles northwest of Alice. Showing on a drill stem test revived hopes for the otherwise disappointing Riverside field. A 4000-foot southeast extension for Francitas also uncovered a 7900-foot sand.

### Kansas

Extensions were recorded for Hittle and Chase pools. East of Silica an outpost swabbed 7 barrels hourly without use of acid. Goodrich pool's fourth pay, a new one, contributed a 1975-barrel Lansing lime well. A dry hole dimmed possibilities of extending Zenith pool over into Reno County. A mile south of Clawson pool the second use of acid in a wildcat boosted the potential to 559 barrels. A dry hole south of Trapp limited development in that direction. North of Goodrich a wildcat is running 30 feet high.

### Texas Gulf Coast

Five miles west of Palacios, Matagorda County, a wildcat is getting a production test. Vicksburg sand looks good in another exploratory test a mile northwest of Sandy Point field, Brazoria County. Fluid rose in an outpost of Turtle Bay field, Chambers County. North of Thompson field, Fort Bend County, an outpost found a new Vicksburg sand at 7800 feet that yielded 10 barrels an hour. League City, Galveston County, got extended southeast and southwest by two wells. Another Wilcox producer was completed east of Segno production in Polk County.

**Comparison of Permits Granted for New Wells**

| STATE | Week Ending April 15 | Total this Mo. | Total this Year | Total this Date Last Year | 1938 Year Total |
|---|---|---|---|---|---|
| Arkansas | 2 | 6 | 54 | 74 | 247 |
| California | 15 | 50 | 306 | 371 | 1,146 |
| Louisiana | 16 | 43 | 323 | 374 | 1,214 |
| Kansas | 26 | 43 | 359 | 503 | 1,453 |
| Michigan | 23 | 41 | 302 | 195 | 953 |
| Oklahoma | 45 | 80 | 564 | 614 | 1,978 |
| Texas | 167 | 412 | 3,133 | 4,317 | 12,369 |
| Total | 294 | 675 | 5,041 | 6,448 | 19,360 |

**Summary of Wells Completed in the United States Week Ending April 15, 1939**

| | Completions | Oil Wells | Gas Wells | Failures | Initial Production | Total 1939 | Total this Date 1938 |
|---|---|---|---|---|---|---|---|
| Alabama | .... | .... | .... | .... | ..... | 1 | ..... |
| Arkansas | 2 | 2 | .... | .... | 972 | 63 | 66 |
| California | 24 | 22 | 1 | 1 | 18,625 | 309 | 338 |
| Colorado | .... | .... | .... | .... | ..... | 7 | 3 |
| Florida | .... | .... | .... | .... | ..... | ..... | ..... |
| Illinois | 44 | 34 | .... | 10 | 9,673 | 1,074 | 212 |
| Indiana | 8 | 1 | 2 | 5 | 40 | 35 | 35 |
| Kansas | 16 | 11 | 2 | 3 | 18,886 | 339 | 555 |
| Kentucky | 8 | 6 | .... | 2 | 763 | 180 | 201 |
| Louisiana | 28 | 20 | 1 | 7 | 5,590 | 280 | 311 |
| Michigan | 31 | 18 | 2 | 11 | 6,530 | 346 | 244 |
| Mississippi | .... | .... | .... | .... | ..... | 1 | 7 |
| Montana | 3 | 2 | 1 | .... | 95 | 28 | 19 |
| Nebraska | .... | .... | .... | .... | ..... | ..... | ..... |
| New Mexico | 6 | 4 | .... | 2 | 1,617 | 180 | 156 |
| New York | 8* | 8* | .... | .... | 45 | 144* | 231* |
| Ohio | 14 | 3 | 6 | 5 | 27 | 229 | 283 |
| Oklahoma | 34* | 22* | 4 | 8 | 24,276 | 557 | 645 |
| Pennsylvania | 33* | 29* | 3 | 1 | 41 | 348* | 731* |
| Texas | 180 | 126 | 1 | 53 | 68,611 | 2,874 | 3,850 |
| Utah | .... | .... | .... | .... | ..... | ..... | ..... |
| West Virginia | 7 | .... | 7 | .... | ..... | 147 | 252 |
| Wyoming | 1 | 1 | .... | .... | 100 | 47 | 28 |
| Total this week | 447 | 309 | 30 | 108 | 155,891 | 7,189 | 8,168† |
| Total last week | 427 | 259 | 38 | 130 | 155,692 | 6,742 | 7,653 |
| Total this year | 7,189 | 4,936 | 506 | 1,747 | ..... | .... | ..... |

* Includes water-input wells. † Includes 1 well completed in Tennessee.

# Oklahoma Fields

***Saturated Hunton lime in Oklahoma County wildcat.***

***Carter finds new gas zone in old Chickasha pool.***

**Tulsa.** — Oklahoma activity brightened during the past week with a test near Newalla showing for a pool opener in Oklahoma County, an edge well in the Billings pool coming in to make the largest producer in the field and earning a 10,000-barrel daily rate, a new gas horizon in Grady County testing for 13,000,000 cubic feet, and Tillman and Kay County tests seeking new pay strata in proven territory.

To cap the week, the deepest drilling test in the northern Mid-Continent, Continental Oil Company's Proctor 1, is showing heavy gas.

Phillips Petroleum Company and Shell Oil Company's Harbison 2, SW NW SW 22-23-2w, at the south edge of production on the west flank of Billings pool, Noble County, flowed 2324 barrels in 5½ hours from Wilcox sand at 4298 to 4322 feet. Seven-inch has been seated at 4299 feet. On a late 40-minute test the well made 605 barrels, all flows being through casing.

Continental Oil Company's Proctor 1, C NW 28-10n-20w, western Washita County, has encountered heavy gas pressure. Operators have found it necessary to add weight to the mud in order to mitigate danger of a blowout. Additional weight body was required a second time, and despite such precaution mud heaves were experienced and gas continues to break through the fluid column. This gas is being bled off during drilling operations below the last reported depth of 10,898 feet.

Olson Oil Company's White 1, C NE NE 30-11n-1e, south of Newalla, Oklahoma County, may be the next new pool for the state. After coring dry second Wilcox sand topped at 6503 feet, it plugged back to 6100 feet and set pipe at 6009 feet, to test saturated Hunton lime. First flow came Monday after bailing down at which oil, gas and mud showed and on second trip down the bailer was lost. It has been flowing two to three times per day for five-minute periods to allow cleaning out as well as trying to blow the bailer out. The last flow was estimated at 7,500,000 cubic feet gas and oil flow at from 100 to 350 barrels daily accompanied by mud and water. Tanks and separator are being installed with plans to acidize before running tubing. Misener sand has been tested by electrical log and also shows saturation.

Grady County contributed a new deep gas zone as Carter Oil Company's Smith 1, C SE SW 26-5n-8w, in old Chickasha gas pool, after perforating casing from 5430 to 5475 feet, encountered an open flow of 2,000,000 cubic feet. Further perforations from 5330 to 5350 feet in the Pennsylvanian sand series swelled the gas volume to 13,000,000 cubic feet at which stage it is now shut in with rock pressure at 1900 pounds per square inch. Slight shows of black and light oils were noted at various coring stages, particularly from 5885 to 5900 feet. Total depth is 6613 feet with 9⅝-inch casing landed at 6602 feet. Testing of other pay shows will likely continue with the results influencing prospects of drilling deeper. All previous gas pay in the old field is above the 3500 foot level.

### Kay County Outpost Showing

An outpost in Kay County is showing possibility of making a producer in Deep Rock Oil Corporation and Helmerich and Payne's Scott 2, NEc 20-28-1w, two locations west of southeast extension to Braman pool. Water entered the hole at 3668 feet whereupon it was plugged back to the Mississippi lime and perforated from 3479 to 3484 feet for no show. Oswego lime, topped at 3256 feet and perforated in successive stages to 3487 feet, was acidized with 2000 gallons at which the well swabbed at rate of 15 to 20 barrels per hour, one third of the fluid being water. It is still testing with swabbing rate continuing at 10 barrels per hour regularly. Dry holes were drilled to the south and west of this test.

A new upper zone for Crescent pool, Logan County, was testing favorably as Gulf Oil Corporation and Carter Oil Company's Knowles 1, C NW NW 34-17-4w, found the second Wilcox dry at 6296 feet but plugged back and perforated Layton series from 4890 to 4925 feet. The first half-hour it flowed 90 barrels with testing to continue. This well is located on the east side of Crescent pool and is believed to have encountered an irregular edge of the second sand; however, production is had to the north and south of this test. Three interesting wells in the same county include Sinclair Prairie Oil Company's Crews 2, NE SW NE 27-16-1e, northeast of Crews 1, discovery well in the Meridan field, topped Hunton lime at 4887 feet, Sylvan at 5007 feet, Viola topped at 5097 feet with Dense at 5142 feet, being 2 feet lower structurally than the discovery well. A 9½-inch core showed tight dolomite, slightly streaked, from 5145 to 5155 feet with a faint odor of oil at the bottom.

Helmerich and Payne and other's Henderson 1, SEc NW 27-16-1e, west offset to Crews 1, discovery well, had a show of oil in Peru topped at 4635 feet, topped Chat at 4890 feet and cored saturated Hunton lime topped at 4900 feet from 4890 to 4907 feet where an oil and gas show was had. Operators are fishing for stuck drill pipe at 5005 feet with drilling likely to be resumed upon completion of the fishing job. This test is checking structurally 25 feet lower than the pool opener. The same company's Johnson 1, SEc 2-15-1e, south of Meridan pool had cemented surface pipe and was waiting for completion of Henderson 1 when rig will be moved in.

Burke-Greis Oil Company's Vanderslice 1, NEc SE 30-14-7e, 3½ miles south of Stroud pool, Creek County, was striving for a new horizon in the Prue sand, topped at 2829 feet for a show of 2,500,000 cubic feet of gas but drilled on to 2893 feet. After shooting, the hole was being cleaned and the tools were lost. The test is bottomed at 2893 feet, with casing landed at 2830 feet.

A deep outpost for Tillman County is apt to unveil a new zone or pool in the Frederick area. Indian Territory Illuminating Oil Company and other's Fillmore 1, SWc 36-2s-19w, had saturated Simpson lime at 4757 feet which filled the hole with oil and flowed some in the pits. This test is north of Canyon lime production which is usually had between 3950 and 4151 feet.

### Oklahoma Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Caddo—** | | |
| Ohio, Wade 11, se sw se 2-5n-9w.. | ¶9 | 6514 |
| Palmer, Dixon 2, swc nw 35-6n-10w | 890 | 3356 |
| **CARTER—** | | |
| Barrett et al, Hinkle 19, nw ne se nw 20-3s-2w | 2 | 239 |
| Shell, McClure 16, nw nwc se 5-4s-3w (otd 1045 ft) | 10 | 1085 |
| **Creek—** | | |
| Bruin, Martin "C" 1, sw se nw 27-14n-10e | * | 3340 |
| Sinclair Prairie et al, 3A, sw sw nw nw 15-17n-7e (input well) | * | 2730 |
| Jackson, Gouge 3, 156 ft e csl ne se sw 33-18n-10e | 70 | 2638 |
| **Lincoln—** | | |
| Stanolind, et al, James 2, sec sw 35-13n-5e | 731 | 4225 |
| Wilcox, School Land 3, se nw ne 16-14n-6e | 274 | 3065 |
| **Murray—** | | |
| Batson, Vanderslice 1, c sw sw 25-2n-2e | * | 3005 |
| **Muskogee—** | | |
| Hollifield, Harris 1-A, 130 ft s cwl se ne ne 19-14n-19e | * | 832 |
| **Oklahoma—** | | |
| Duncan, Themier 1, 100 ft e csl nw se sw 2-11n-3w | 20 | 4506 |
| Clum, Rummel 1, ne swc nw 15-12n-3w | 84 | 6549 |
| Inland Development Co., Harn 1, ne sw nw nw 27-12n-3w | 100 | 6509 |
| **Okmulgee—** | | |
| Young, Moore 1, ne ne sw ne 31-13n-14e (pb 1600 ft) | ¶1 | 1715 |
| **Pawnee—** | | |
| Bunch et al, Zacafoose 1, ne sw ne 23-20n-9e | * | 2100 |
| **Payne—** | | |
| Magnolia, Cain 2, c e½ nw sw 12-17n-1e | 623 | 4900 |
| Mid-Continent, Simpson 1, se sw sw 7-18n-2e | 9692 | 4840 |
| Nottingham 1, nwc se 18-18n-2e | 5653 | 4842 |
| Stanolind et al, Walters 2, nw sw ne 18-18n-2e | 4690 | 4848 |
| **Pontotoc—** | | |
| Crusader, Novin 8, nw sw se 20-2n-7e | 42 | 4369 |
| **Pottawatomie—** | | |
| Denver P&R, Schroeder 1, nw se ne 1-6n-4e | 308 | 4203 |
| Mid-Continent, Quinn 1, sw se ne 20-7n-5e (otd 4237 ft) | 68 | 3847 |
| Trigg, Turesdell 1, swc se 21-7n-5e | 80 | 4130 |
| Deep Rock, Tolen 5, se sw sw 30-7n-5e (otd 4210 ft) | 69 | 4279 |
| **Seminole—** | | |
| Sunray, Key 1, se nw se 12-6n-5e.. | 560 | 3831 |
| Grisso, Johnson 2, swc 27-6n-5e (pb 2400 ft) | * | 2794 |
| Davis, Sarkey 1-A, 100 ft s nw se se 7-6n-8e | * | 2865 |
| Malernee, Shelton 1, se nw sw 33-7n-6e | 120 | 2916 |
| Smith, Cheparney 1, ne sw se 2-8n-6e | 190 | 4166 |
| **Stephens—** | | |
| Keister, Jones-Quinn 1-A, sw sw nw se 23-1s-5w | ¶0.1 | 485 |
| Mudge Oil Co., Crosby 20, se ne sw 23-1s-5w | ¶0.25 | 491 |
| Pace, Houston "B" 11, ne sw ne sw 2-2s-8w | * | 2178 |
| **Tillman—** | | |
| Ray et al, Madison 1, nwc sw 11-2s-16w | * | 1894 |

* Failures; † Junked; ¶ Million cu. ft. gas.

# Kansas Field Development

***Test east of Silica swabs seven barrels per hour.***

***Extensions recorded for Chase and Hittle pools.***

**Wichita.**—Kansas activity took the form of major extensions with four going into the records. Two previously reported wells as looking favorable have come in to show, although neither has been given a test. Major interest during the past week turned to wildcat locations scattered through the state, most of them being definitely off-trend.

A one-mile west extension to the Chase pool of Rice County is assured at Gulf Oil Corporation's Barngrover 1, SWc 30-19-9w. The test filled 7700 feet from Arbuckle lime in five hours after plug was drilled. No test has been made, pending erection of storage. Hole is at 3284 feet in the lime.

Schroeder pool, southern Ellsworth County, gained a half-mile extension in Arbuckle with Central Petroleum Company's Wessler 1, C E½ E½ NW 19-17-9w. Drilled into Arbuckle at 3253 feet, the test filled 3100 feet with oil, no test having been made. The Arbuckle zone of Stumps pool, Rice County, has a possible extensioner in Transwestern Oil Company's Daughterty 1, SW SW NE 33-17-10w. After acid the well pumped 35 barrels in 3 hours from 3282 feet.

On the east edge of the big Silica area, G. H. Rose et al's A. Hathaway 1, SE SE NW 34-19-10w, Rice County, topped Arbuckle dolomite at 3303 and drilled to 3309. Without acid the test swabbed at a rate of seven barrels per hour. The operator is to treat before taking a potential and gauging the present show on past performance of wells in the vicinity, the test should make a fair completion.

### Kansas Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Barber—** | | |
| Barbara, Wilson 1, c se¼ 17-33-13w | ¶4 | 5201 |
| **Barton—** | | |
| Sinclair Prairie, Mary Prusa 2, 110 ft s cwl nw ne se 20-16-11w | 2954 | 3300 |
| Martin et al, Feltes 1, nw sw se 8-16-12w | 2546 | 2906 |
| Stanolind, Dick 5, 80 ft s c s½ sw 2-20-11w | 1246 | 3289 |
| **Cowley—** | | |
| Hartman et al, Waite 4, ne se sw 21-31-4e | 6945 | 3277 |
| **Ellis—** | | |
| Twin Drlg. Co., Polcyn 2, csl sw ne se 12-13-16w | Abnd. | Lcn. |
| **Greenwood—** | | |
| Marcus et al, Thrall 5, se ne ne 17-24-12e | * | 1815 |
| Mendenhall, Coffman 1, se sw se sw 17-24-13e | 30 | 1660 |
| **Harvey—** | | |
| Okan, Ashman 1, c nw nw 29-23-3w | 438 | 3371 |
| **Kingman—** | | |
| Skelly, Miles "D" 1, cwl sw se ne 19-27-10w | 347 | 3538 |
| **Pratt—** | | |
| Drillers Gas, Hoagland 1, se ne se 26-27-11w | ¶28.5 | 4078 |
| **Rice—** | | |
| Murfin et al, Habiger 1, 100 ft e swc 6-18-9w | * | 3270 |
| Gulf, Yeo 1, nwc 30-20-10w | 267 | 3310 |
| Renney et al, Williams 1, c s½ se sw 27-21-9w | * | 3468 |
| **Russell—** | | |
| Phil-Han et al, Niedenthal 1, nw ne nw 13-14-15w | 1218 | 3054 |
| **Stafford—** | | |
| Stanolind, Hayes 5, cwl se nw se 11-24-11w | 1454 | 3765 |
| Stanolind, Fuller 5, cwl se ne sw 11-24-11w | 1441 | 3764 |

* Failures; † Junked; ¶ Million cu. ft. gas.

### Hittle Outpost Good

Hittle pool, northwest-central Cowley County, the hot spot of southeast Kansas development, has been extended one quarter mile west in Barnett-Connley's Waite 1, NE NW SW 21-31s-4e. This test is not complete, having only drilled into the pay late in the week. Arbuckle was topped at 3360 feet and oil began showing just above 3362. Other wells in the field found the pay high in the formation. Waite 1, a quarter mile west of the nearest producer, Hartman and Blair's Waite 2, found the Arbuckle 40 feet lower than the latter, but this drop down structure is not considered too great. Hittle pool has witnessed rapid development within the past six months, with some potentials exceeding 6000 barrels.

Ace Petroleum Company's Black 1, NW SE NE 21-25-1e, Sedgwick County, eight miles north of Wichita and in the Goodrich pool, a test that indicated a fourth producing horizon for the field when it began showing in Lansing lime, has been completed for 1975 barrels daily. Hole is at 2280 feet after a plug.

The possibility of extending Zenith pool of Stafford County into Reno County to make a two-county field has been lessened by a failure, Alfred M. Landon's Union Central Life Insurance Company 1, SWc 7-24-10w. The test drilled into the Misener section to 3756 feet, but found only a slight show of oil and gas. The section was thin, tight and streaked with shale, and although high on structure, would not produce.

Southwest of the same pool in Stafford County, E. H. Moore's Secrest 1, SEc NW 21-25-11w, between Zenith and the abandoned Neola pool, is hunting markers with Viola in prospect. The well has cored to 3980 feet in Kinderhook shale, with the possible pays expected momentarily.

York State Oil Company's Marchand 1, CE½ NE NE 24-20-12w, southeast Barton County, which made 160 barrels on intial completion test, has been reacidized in Arbuckle at 3316 feet and made a potential of 559 barrels per day; 3000 gallons of acid was used. The well is one mile south of Clawson pool, but is considered located on a separate high.

One mile west of production in Kruckenberg pool, Barton County, Amerada Petroleum Corporation is testing Merten 1, CNW NW 14-19-15w. After finding Granite Wash dry and the Arbuckle absent, the hole was plugged to 3395 feet for a test of the Kansas City-Lansing strata. On test the well flowed 25 barrels of crude with gas estimated at 5,000,000 cubic feet. A physical productive test is being made with a bottom hole pressure bomb.

### Trapp Defined

Another dry hole south of Trapp pool, Barton County, further limits development in this direction. Vernon Oil Company's Miller 1, SE SW SE 17-16-14w, about three quarters of a mile south of nearest production, drilled into Arbuckle lime at 3425 feet and found it dry. Less than two barrels per hour could be swabbed, this decreasing and water increasing after treatment with 500 gallons of acid.

A wildcat north of the Goodrich pool of Sedgwick County, is finding strata markers 30 feet high at a depth of 3000 feet. It is C. L. Carlock and E. J. Shaffer's Evans 1, SW SE 6-25-2e. Chat, the main objective, is expected at around 3100 to 3120 feet.

### Off-Trend Wildcats

Stakes driven for wildcat tests have occasioned interest by reason of their off-trend locations. In Ness County, western Kansas, and on the flank of the Uplift as it dips into the Basin, Forest Kelly et al's Ray 1, NE NE SW 24-16-22w, near Brownell in the northeast corner of the county, is digging cellar and pits. Location is 20 miles from nearest development and 80 miles from major activity. The test is on a trend east of the Lane-Gove County line high.

In Phillips County, Blue Stem Oil Company has made location for Donaldson 1, SE NE NE 25-5s-18w, 28 miles from the Nebraska line. Faubion pool of extreme northern Rooks County, eight miles south, is nearest production.

Tools are being moved in for a wildcat test in Sumner County, near the Padgett area. Well is H. N. Greis and Kerr-Lynn Oil Company's Seyfert 1, SE SE SE 18-34-2e, in the southeast corner of the county. In the first township north, E. B. Shawver is drilling at Nice 1, a wildcat in NE NE SW 16-33-2e.

On the trend northwest from the Uplift, Power Oil Company has made location for Van Patton 1, NE NE NE 24-4s-21w. There is no production in the county. Magnetometer surveys have proved subsurface high and a continuance of the Uplift as far as the Nebraska State line in a direction equivalent to the strike of the Uplift through Russell and Ellis Counties.

In eastern Kansas OK Supply Company has staked for Knabe 1, C NE NW 15-14-22e, Johnson County, near Gardner. This is an area that has had shallow plays for many years, but few tests to deeper zones. The operator plans to carry the hole to Arbuckle lime, although higher possible pays are Kansas City-Lansing and the Wilcox.

## *Producers and royalty owners get charter*

The Illinois Independent Oil Producers & Royalty Owners Association, headed by John Pugh, Centralia operator, last week was chartered as an Illinois non-profit corporation. The organization's application declared it to be formed "to provide an agency through which, by ethically and legally correct organized collective action, independent oil producers, land owners, oil royalty owners and others, directly or indirectly affected by or interested in oil development in Illinois, might protect, preserve and advance their common interest."

# Illinois Developments

***Jefferson County wildcat sets casing on McClosky. Yield of Shelby County's first well unsatisfactory.***

**Olney, Ill.**—W. F. Armstrong's S. W. Scott 1, W½ SE 23-3s-2e, McClellan Township, Jefferson County, set casing to the top of the McClosky at 2828 feet last week on strength of an electrical log reading. The wildcat first appeared dry in the lime, having cored a dry Benoist at 2620 feet and a dry Aux Vases at 2690 feet.

J. A. Ayleward and Elmer Corn's Wabash Right-of-Way 1, C N½ N½ 27-10n-5e, Prairie Township, first oil well completion in Shelby County, produced only 25 barrels of oil from the Benoist sand on its initial 24-hour test and operators re-entered the hole to deepen from 1961 feet. If other saturation is not found, the well will be plugged back to the top of the Benoist at 1950 feet and a pump installed.

Arthur "Tex" Harvey appeared in no hurry to complete Salem Building & Loan 1, NE SE 33-3n-2e, Tonti Township, Marion County, which cored 12 feet of McClosky saturation below 2161 feet a week ago. Indicating a new pool, it is 1½ miles northeast of W. S. Tatum's Bachman 1, which topped the McClosky 30 feet lower and was abandoned when that formation proved dry. The Bachman failure is taken to indicate that there is no correlation between the wildcat and the Lake Centralia-Salem pool.

## Illinois Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Bond County—** | | |
| Kesl et al, Meyer 1 | * | 1520 |
| **Clay County—** | | |
| Pure, Wilkins 12 | 263 | 3060 |
| Richard Duncan, Liggett 1 | 1200 | 2380 |
| **Coles County—** | | |
| Texas Canadian Oil Co., Miller 1 | * | 2200 |
| **Fayette County—** | | |
| Carter, Owens 1 | 480 | 1581 |
| Mary Welker 2 | 160 | 1519 |
| Mary Welker 4 | 214 | 1571 |
| Florence Harding 4 | * | 1604 |
| Leah Griffith 1 | * | 1585 |
| Phyllis Reece 5 | 145 | 1575 |
| Robert Matson 1 | 150 | 1482 |
| Matson-Reed 4 | 513 | 1473 |
| Dixie Oil Co., Sidner 1 | 10 | 1560 |
| Jarvis Bros., Welker 2B | 190 | 1565 |
| H. Rosenthal et al, Molly Rush 1 | 200 | 1594 |
| **Lawrence County—** | | |
| Ullom & Purnell, A. B. Jordan 1 | * | 655 |
| **Marion County—** | | |
| Texas Co., O. Johnson 9 | 210 | 1781 |
| V. Kalkbrenner 5 | 168 | 1788 |
| V. Kalkbrenner 10 | 105 | 1980 |
| V. Kalkbrenner 18 | 189 | 1782 |
| H. Small 8 | 140 | 2007 |
| H. Small 9 | 196 | 2012 |
| J. Canull 11 | * | 1800 |
| W. Carr 1B | 250 | 1756 |
| W. Friedrich 6B | 567 | 1831 |
| W. D. Fyke 2 | 147 | 1885 |
| M. Bryant 2 | 147 | 1890 |
| M. Bryant 3 | 189 | 1889 |
| M. Bryant 5 | 182 | 1891 |
| City of Centralia 11 | 350 | 2048 |
| City of Centralia 12 | 210 | 1868 |
| W. Martin 4 | 126 | 1843 |
| W. Martin 5 | 105 | 1851 |
| N. Young 10 | 609 | 1796 |
| A. J. Sweney 3 | 370 | 1831 |
| Rock Hill Oil Co., Foster 6 | * | 1846 |
| Shell, Salem State Bank 9A | 923 | 2003 |
| John Q. Gill, J. A. Broom 1 | * | 2480 |
| **Washington County—** | | |
| G. H. Blankenship, J. L. Dennis 1 | 25 | 1239 |
| **Wayne County—** | | |
| Pure, Florence Behymer 1 | 567 | 3125 |
| Kingwood & Held, Gibbs 1 | * | 3400 |
| Pure Oil Co., W. H. Evans 1 | 97 | 3095 |
| J. Craft 1 | 276 | 3100 |
| Texas Co., J. G. Boggs 1 | * | 3466 |

* Failures; † Junked; ¶ Million cu. ft. gas.

## Devonian Testing Deferred

While The Texas Company and other operators in the Lake Centralia-Salem pool were deferring exploration of the deep Devonian lime formation in view of marketing difficulties, Hardman-Knight's Hess 1, NE 19-1n-2e, south outpost to the pool, was moving off rotary tools to continue the test with a cable outfit from 2350 feet to the Devonian. Outcome of the test will be closely watched in view of The Texas Company's recent purchase of the English lease, where a Devonian test was drilling, and the desire of that and other majors in the pool to delay development of the lower formations.

A Coles County Devonian test was listed as a failure last week. R. F. Wheeles et al's Michael 2, SE SE NE 2-11n-7e, Paradise Township, dumped 4000 gallons of acid into that formation at 3254 feet, where a slight show had been reported. Swabbing failed to produce results, and casing was being pulled.

The new Cordes pool of Washington County, opened last month, and the new Larkinsburg Township area in Clay County, opened last week, commanded interest as development in both areas proceeded at a rapid pace. After taking two dry Benoist cores below 1267 feet, Hutchins et al's Chapman 1, Section 35-3s-3w, 2¾ miles southwest of production in the Cordes pool, set pipe after recovering an undisclosed amount of saturation in the third core. Reports differed as to the formation, some giving the Benoist sand from which other wells in the pool are producing, and others giving the lower Aux Vases.

## Complete Good Pumper

Largest completion of the week in the Cordes pool was Pres Cochrane and G. H. Blankenship's Oak Grove Cemetery 2, offsetting the well that opened the intensive drilling campaign in the area. It pumped 484 barrels in its initial 24-hour test. McBride, Inc.'s Wiese 2, offsetting this company's Wiese 1, which is a 300-barrel well, swabbed 9 barrels an hour. A 15-quart shot was being lowered to boost production. Shell Petroleum Corporation's Holston 1, NE NE NW 22-3s-3w, south offset to the Cemetery 1, had a pump installed with bottom in the Benoist at 1296 feet, while the Holston 2 was preparing to drill plugs. Magnolia Petroleum Company's Francis 1 was preparing to drill plugs, while derricks were erected for the Nos. 2, 3 and 4 on that lease and pits dug for Francis 5.

McBride's pipe line to the M. & I. Railroad at Cordes has been completed, and Shell Petroleum Corporation has acquired right-of-way for another line to that community.

## New Pool Confirmed

Confirmation of the new Clay County pool was furnished by Burnett and Bumpass' Cyrus-Liggett 1, Section 17-5n-5e, which flowed 55 barrels with pump agitation during an hour test while cleaning out. It topped the Aux Vases pay at 2341 feet. Richard Duncan's H. Huber 1, Section 17-5n-5e, was drilling at 2300 feet after successfully completing a fishing job at 1100 feet. There are four other operations in this area.

In southern Richland County, Leathers et al's A. Yonoka 1, NW SE SW 22-2n-14w, Bonpas Township, 15 miles from production, was drilling plugs to 4 feet of slight McClosky saturation at 3052 feet. While it is not expected to make more than a small well, interest in the area was increased last week when Kingwood Oil Company moved in a derrick and rig for Eli Provines 1, SE SE SW 3-2n-14w, 3 miles directly north of the Yonoka test. It will be a

## West Virginia Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Gilmer County—** | | |
| Pittsburgh & W. Va. Gas Co., Cottrill 7665 | ¶.03 | 1903 |
| **Jackson County—** | | |
| Rubin, Johnston et al, Curry 1 | ¶.30 | 4721 |
| Starcher et al, R. Boggess 1 | ¶3.36 | 4994 |
| **Kanawha County—** | | |
| United Fuel Gas Co., Beane 4822 | ¶3.00 | 5090 |
| **Lincoln County—** | | |
| Kanawha Gas & Utilities Co., Davis 2 | ¶.33 | 3808 |
| Woodall Gas Co., Adkins 2 | ¶.07 | 3720 |
| **Wayne County—** | | |
| Adkins et al, Cyrus 1 | ¶.37 | 3120 |

## Pennsylvania Completions

**BRADFORD DISTRICT**

| | | |
|---|---|---|
| **McKean County—** | | |
| Penn Bradford Oil Co., Warrant 5574 | * | 4145 |
| **Potter County—** | | |
| G. L. Cabot, Inc., Plank School 1 | ¶15.80 | 4735 |
| Hardwick, Rice & Tuohy, Fisher | 2 | .... |
| J. H. Brahaney, Fee | 1 | .... |
| Penn Valley Crude Oil Corp., Redfield | 3 | .... |
| Forest Oil Corp., 2 wells | 2 | .... |
| Forest Petroleum Corp., 3 wells | 3 | .... |
| Niagara Oil Corp., 3 wells | 3 | .... |
| Niagara Oil Corp., 2 wells | 2 | .... |
| Bradford Transit Co., 9 wells | 9 | .... |
| **Bradford: Water Intake Wells** | | |
| H & H Oil Co., Moody | ... | .... |
| Forest Oil Corp., 2 wells | ... | .... |

**BUTLER-ARMSTRONG DISTRICT**

| | | |
|---|---|---|
| J. A. Elliott et al, N. B. Duncan | 6 | .... |
| E. M. Shaner et al, F. W. Mitchell | 1½ | .... |

**MIDDLE DISTRICT**

| | | |
|---|---|---|
| Warren Bank & Trust Co., Reynolds | 5 | .... |
| J. E. Fleming, Dunderdale | 2 | .... |
| C. L. Irwin, H. L. & B. Cross | 1 | .... |
| **New York-Pennsylvania: Gas Field—** | | |
| G. L. Cabot, Inc., George Hotaling No. 2 | ¶ | .... |
| New York State Natural Gas Co., Meade | ¶ | .... |

## New York Completions

| | | |
|---|---|---|
| **Allegany County—** | | |
| R. B. Moore et al, Curtis farm, Bolivar | 8 | 1324 |
| Forest Oil Co., Ackerman farm, Bolivar | 10 | 1374 |
| Ackerman farm, Bolivar | 12 | 1386 |
| Pure Penn Oil Co., Christman farm, Bolivar | 10 | 1420 |
| Tyler & Livermore, Root farm, Bolivar | 5 | 1265 |
| **Allegany: Water Intake Wells** | | |
| Pure Penn Oil Co., Christman farm, Bolivar | ... | 1425 |
| Forest Oil Co., Ackerman farm, Bolivar | ... | 1390 |
| Ackerman farm, Bolivar | ... | 1375 |

* Failures; † Junked; ¶ Million cu. ft. gas.

McClosky test. The rig was moved from Kingwood Oil Company and Held's Gibbs 1, wildcat in NW NW SW 11-1n-9e, Mount Erie Township, Wayne County, which was abandoned at 3400 feet after drilling through the McClosky horizon. It was the first test to be undertaken in northeastern Wayne County.

Mammoth Producing & Refining Company's effort to extend the Noble-Denver Township Cypress sand pool of Richland County southwest failed when its Heitz-Ridenour 1, Section 34-4n-9e, found that formation dry. It was drilling at 3030 feet towards the McClosky.

Having been watched as possibly indicating extension of the Griffin pool of Gibson County, Indiana, across the Wabash River into Illinois, Longhorn Oil Company's Edith B. Helm 1, SE SE NW 15-3s-14w, Compton Township, a wildcat 2½ miles west of the Indiana pool discovery, found sulphur water in the McClosky and was abandoned at 3200 feet.

### Kentucky Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Daviess County—** | | |
| Chevault et al, Wilson 1 | 15 | 1687 |
| Major Oil Co., Wahl 5 | 125 | 1890 |
| Rex Pyramid Oil Co., Sands 2 | * | 1410 |
| Kentucky-Missouri Oil Co., Jones 1 | 75 | 1270 |
| **Henderson County—** | | |
| Springrose Dr. Co., Pillman 1 | 500 | 1972 |
| **Martin County—** | | |
| Kentucky-W. Va. Gas Co., Preece 5251 | 8 | 1241 |
| **Ohio County—** | | |
| Dehart & Allison, M. Powers | 40 | 697 |
| Neal, Bellamy 5 | * | 608 |

* Failures; † Junked; ¶ Million cu. ft. gas.

### Indiana Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Dearborn County—** | | |
| Lawrenceburg Gas Supply Co., Greendale 1 | * | .... |
| **Pike County—** | | |
| Kirk D. Holland, Bank of Evansville 8 | ¶ | 648 |
| Bank of Evansville 9 | * | 652 |
| **Posey County—** | | |
| Sun, Hahn 1 | 40 | 1900 |
| **Shelby County—** | | |
| J. H. Snider, Snider 1 | ¶ | 951 |
| **Spencer County —** | | |
| Sycamore Oil Co., Prudential Life 1 | * | 1783 |
| **Sullivan County—** | | |
| Reed et al, David Huff 1 | * | 851 |
| **Vanderburg County—** | | |
| Arab Petroleum Co., Tieken 1 | * | 2735 |

* Failures; † Junked; ¶ Million cu. ft. gas.

### Ohio Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Ashland County—** | | |
| C. C. Cromer, Acker 1 | 15 | 730 |
| **Cuyhoga County—** | | |
| Benedum-Trees Co., Williams 1 | ¶2.10 | 2804 |
| **Fairfield County—** | | |
| City Nat. Gas Works, Mary Bowman 2 | * | 2187 |
| **Guernsey County—** | | |
| Ohio Fuel Gas Co., Bair | ¶.52 | 1331 |
| **Knox County—** | | |
| Brown, E. Lescalette 2 | * | 729 |
| Ohio Fuel Gas Co., Mizer 1 | ¶2.90 | 2776 |
| **Licking County—** | | |
| Bishop et al, Baker 1 | ¶ | 799 |
| Vandergrift et al, Connor 2 | 9 | 810 |
| **Medina County—** | | |
| Dempsey, Hastings 2 | * | 2616 |
| **Meigs County—** | | |
| Ohio Fuel Gas Co., Russell 2 | ¶.50 | 800 |
| **Perry County—** | | |
| Altier and Sons, Gladden 8 | ¶.15 | 1074 |
| Gas Prod. Co. of Ohio, Wilson Heirs 1 | * | 3530 |
| **Washington County—** | | |
| Greenlees & Dow, Dow 12 | 3 | 1527 |
| Bowman et al, Wilson 3 | * | 807 |

* Failures; † Junked; ¶ Million cu. ft. gas.

# Indiana Fields

## *Completion of potential pool openers is delayed*

**Evansville.**—Two wildcats which a week ago gave promising indications of opening new pools continued to command attention last week as they neared completion stage. Arthur Grewe et al's (McWilliams-Schwartz') Jas. S. Brammer 1, SE NE NE 14-5s-9w, Campbell Township, Warrick County, was completing a reaming operation and operators expected to set casing late in the week. The test, taken below 1000 feet with a diamond core drill, found three feet of McClosky lime with good porosity and saturation. It would be the county's first oil well. At an elevation of 448 feet, the wildcat topped the Chester or Menard at 1208 feet; Vienna at 1335 feet; Tar Springs or Jett at 1338 feet, Glen Dean at 1412 feet; Hardinsburgh at 1444 feet; Golconda at 1529 feet; Jackson at 1584 feet; Barlow lime at 1656 feet; Barlow sand at 1665 feet; Bethel lime missing; Bethel sand at 1710 feet; Renault at 1764 feet; St. Genevieve at 1856 feet, and McClosky at 1887 feet. It had been drilled to 1956 feet, but plugged back to the McClosky.

A. Grewe & August Kruse's (Clint Crosby's) Pauline Scherer 1, NW NW SW 13-7s-13w, Black Township, Posey County, reported commercial-looking McClosky saturation a week ago.

Closely watched as possibly furnishing a 1½-mile southeast extension to the Griffin McClosky lime pool of Gibson County, Ray J. Ryan et al's Wm. & Brizella Dunn 1, NE SE SE 18-3s-13w, Wabash Township, was reported preparing to deepen to the second break in the McClosky after it reacted unfavorably to a 1000-gallon acid treatment given to 14-feet of saturation with poor porosity below 2950 feet.

R. S. Hayes' Ralph Baker 1, SW SE NW 29-3n-2w, Northwest Township, Orange County, first St. Peter sandstone test of that area, shut down at 3210 feet with indications the wildcat will be abandoned. It had been drilled well past the depth of the formation, comparable to the Wilcox sand of Oklahoma, was expected, but there were no signs of pay. The Trenton or Kimmswick lime was topped at 2568 feet, and at 3150 feet the formation changed with no favorable indications. The Trenton is near the top of the Ordovician series, which had been passed through, and the St. Peter at the bottom.

Sun Oil Company moved 2½ miles northwest of Heusler Dome pool of Marrs Township, Posey County, to the Henry Batteiger farm in an effort to make a sizeable extension to this pool where production is being taken from the Jett and Waltersburg sand formations. Batteiger 1 was drilling below surface pipe last week.

Among recent new starts are Longhorn Oil Company, L. W. Choate et al's Walter Coleman 1, NW NW NE 3-2s-11w, northwest of Princeton, Gibson County, drilling at 1400 feet; Trio Oil Company's Frank Swallow Estate 1, SW SW SE 32-6s-8w, Luce Township, Spencer County, moving in materials; Hawaiian American Exploration Company's May & Josephine Frakes 1, SW NE SE 20-8n-9w, Hamilton Township, Sullivan County, drilling below surface pipe, a reported Devonian test; Walter Meyers and Otto Graham's W. Seifert 1, C NW SE 19-6s-12w, northern Marrs Township, Posey County, moving in materials, and A. J. Tyler and Fred Harrer's Leslie & Julia Doogs 1, SE NE SE 3-5s-2w, Leopold Township, Perry County, drilling below surface pipe.

A wildcat failure of the week was Arab Petroleum Corporation's John Tieken 1, SE SE SW 17-5s-11w, German Township, Vanderburgh County, 3 miles southeast of St. Wendel, abandoned at 2735 feet.

# Kentucky Fields

## *Find McClosky lime pool in Henderson County*

**Owensboro, Ky.**—Springrose Drilling Company's Pillman 1, 1¼ miles northwest of Reed, Henderson County, opened a new McClosky lime pool when it started swabbing 35 barrels of oil an hour after treatment with 1050 gallons of acid. With a small amount of gas, the well was expected to produce 500 barrels a day on the pump. The wildcat, drilled after five failures in the Reed section, topped 6 feet of lime saturation below 1966 feet. Nearest production is in the Spottsville pool, seven miles distant.

Sun Oil Company's Mrs. William Hodge 1 was a new Henderson County wildcat start. Being drilled by H & H Drilling Company, it is 3½ miles east of Weaverton and will be taken to the McClosky, expected at about 2000 feet.

Confirmation of the new Corydon pool of Henderson County was given by Sun Oil Company's George Trigg 1, which flowed 120 barrels on an 18-hour test before acidization. Production was from the second break in the McClosky lime, where a 5-foot saturation was topped at 2626 feet. Acid treatment was to be given this week. The discovery—Sun Oil Company and Kentucky Natural Gas Company's G. Trigg et al 2—started at 8 barrels an hour with a total depth of 2605 feet. It opened a new pool 12 miles from production when completed in February.

In Muhlenberg County, Fred Phillips' Shearn Coal Company 4 was spudded as a north offset to the No. 1 on this tract which opened a new McClosky pool 1½ miles south of Belton two months ago. Pump was being installed at the No. 2, which made 52 barrels a day following treatment with 2000 gallons of acid, and casing was being set to the McClosky at 1550 feet at the No. 3.

Hupp & Duff's Reno 1, on Highway 60 in Daviess County, near the Henderson County line, found the Jones sand dry at 1450 feet and was deepening with rotary to the McClosky, expected at 2000 feet.

Ten feet of Cunningham sand with some saturation was drilled below 1550 feet by Master Oil Company's Johnson

1, at Utica, and the test was being continued to the McClosky. If production is found in the lime, an effort will be made to produce both formations.

Pumping activities in the Birk City pool curtailed by high water resulted in a decline to 40,261 barrels in Henderson county production during February.

## *Nathan Adams celebrates 50 years with Dallas bank*

Many leaders of the petroleum industry, bankers and financiers and industrialists of national reputation will gather in Dallas April 20 to join with Nathan Adams, president of the First National Bank, in celebrating his golden anniversary of continuous service with the bank he now heads. Jesse H. Jones, chairman of the Reconstruction Finance Corporation, Washington, will head a delegation of New York and Eastern bankers coming to Dallas for the celebration.

Nathan Adams is credited with suggesting the establishment of the tender board and it is his plan the Texas bankers have adopted to finance oil development in the Southwest.

In the Jones party will be two past presidents of the American Bankers Association, Tom K. Smith and John J. Lonsdale of St. Louis. Lonsdale was also president of the United States Chamber of Commerce. Out of New York will be Frank K. Houston, Chemical National Bank & Trust Company; Percy Ebbott, Chase National Bank; W. Randolph Burgess, National City Bank; Artemus L. Gates, New York Trust Company; Matthew S. Sloan, president of the M-K-T Railway, and Lewis P. Pierson of the Irving Trust Company. Walter S. Bucklin, president of the National Shawmut Bank of Boston, will join the party in New York. Pickups will be made enroute to Dallas.

**NATHAN ADAMS**

**President of The First National Bank in Dallas, celebrating 50 years connection.**

# West Texas Fields

***Field extensions in Ector County to bring more drilling. Dunes pool, Crane County, completing well; good flow.***

**Midland, Texas.**—Development of oil production two miles southeast of the Bennett field, Yoakum County, and a prospective major extension for the Cummins-Goldsmith area, Ector County, will attract more drilling in each sector. The Yoakum County project involves Shell Oil Company's Waples-Platter 1, SW SW NW Section 616, which was carrying 2400 feet of 29.6-gravity oil and a small amount of brackish water from broken pay at 5260-5350 feet. Water, encountered at 5323-26 feet, with an elevation of 3567 feet, appeared to diminish as the test was deepened with tools. The hole filled at rate of 700 feet per hour after swabbing the fluid down to the casing seat at 4991 feet, indicating a commercial producer after nitro shot or acid. First oil was reached about 160 feet lower structurally than the top of the pay in the nearest Bennett field producer, and the hole is bottomed below the water level in the latter area. An intermediate test may be necessary to determine if it is a low outpost well, or on a separate geological feature.

Revival of interest in northwestern Ector County followed the recovery of core, carrying fair porosity and saturation at 4295-4310 feet by Magnolia Petroleum Company's T. P. Land Trust 1, SWc T&P Section 9, Block 45, T-1-N. Seven-inch pipe was cemented at 4250 feet for a production test. It has an elevation of 3310 feet. The probable pay zone is about level with nearest production in the Goldsmith field, located 1-2⅓ miles to the southeast. The well is 1-1/3 miles southwest of the Cummins area discovery well, completed in July, 1934, spraying oil with a big gas flow at 4267-4509 feet. The new test may result in the linking of the Cummins two-well pool and the Goldsmith field, as a single intermediate failure is discounted as being a decisive barrier.

The Dunes pool, Crane County, representing a northwest extension of the Church & Fields area, accounted for one of its largest wells when Great Western Producers, Inc.'s University 1-A, NW NW SW Section 5, gauged 764 barrels initial with tools in the hole after 785-quart nitro shot as 3290 feet. The original hole was partially junked at 3300 feet by a premature shot, and a whipstock was landed at 405 feet to sidetrack. Standard Oil Company of Texas is to try for a ¾-mile northwest extension in starting operations on Adams 1, NW SE SE Section 12, Block B-24. Gulf Oil Corporation's Waddell et al 10, southeast outpost for the Ordovician sector of the Sand Hills field, tested 116 barrels of high-gravity oil and distillate in 4 hours, logging Ellinberger lime at 5956-6027 feet. The gas volume was rated at 15,720,000 feet daily at the end of the test and the bulk of same is from Simpson topped at 5819 feet. The company's Tubb 16, an east offset, failed to produce in

### Texas Panhandle Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Collingsworth County (Wildcat)—** | | |
| Anderson & Mee, Mooney 1 | * | 2505 |
| **Donley County (Wildcat)—** | | |
| Robinson et al, N. Kuteman 1 | * | 4406 |
| **Gray County—** | | |
| Magnolia, Merten 22-B | 225 | 3198 |
| Manson Oil Co., Sullivan 6 | 492 | 3250 |
| S. & S. Oil Co., J. T. Benson 3 | 456 | 3294 |
| Sinclair Prairie, Coomley 8 | 455 | 3222 |
| Tripplehorn et al, L. H. Webb 2 | 87 | 2665 |
| **Hutchinson County—** | | |
| Gulf, Cockrell 7-C | 180 | 3090 |
| Stanolind, Terry 15 | 157 | 2989 |
| **Moore County—** | | |
| Magnolia, Jones 6 | 62 | 3409 |

* Failures; † Junked; ¶ Million cu. ft. gas.

### West Texas Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Andrews County (Fuhrman)—** | | |
| Barnsdall, Ford 8 | 805 | 4454 |
| **Andrews County (Means)—** | | |
| Humble, J. S. Means 58 | 1687 | 4508 |
| **Crockett County (Crockett)—** | | |
| Gilcrease Oil Co., University-Humble 3-16 | 48 | 1405 |
| **Culberson County (Wildcat)—** | | |
| Niehaus et al, C. M. Caldwell 1 | * | 5008 |
| **Ector County (Foster)—** | | |
| Broderick & Calvert, V. Bagley 1 | 1138 | 4296 |
| **Ector County (Goldsmith)—** | | |
| Atlantic, Cummins 1-G | 177 | 4300 |
| Gulf, Goldsmith 171 | 95 | 4168 |
| Goldsmith 177 | 864 | 4215 |
| Landreth Prod. Corp., Scharbauer 7-M | 761 | 4185 |
| **Ector County (Jordan)—** | | |
| Atlantic-Skelly, University 4-C | 849 | 3650 |
| **Ector County (North Cowden)—** | | |
| Rushwold Oil Co., Woods 2-S | 4586 | 4381 |
| **Glasscock County (Carter)—** | | |
| Duffy et al, Carter-Shell 1 | * | 2708 |
| **Tom Green County (Wildcat)—** | | |
| Tom Green Oil Co., J. F. Schriever 1 | * | 2042 |
| **Howard County—** | | |
| Continental-Group 1, Settles 3-S-A | 600 | 1290 |
| Magnolia, A. E. O'Daniel 16 | 643 | 2790 |
| Shell, Snyder 3-A | 432 | 2880 |
| **Jones County—** | | |
| Consolidated Oil Co.-Ray Bros., McCaskey 2 | 344 | 3248 |
| Fain-McGaha, Shaheen 3 | * | 1913 |
| **Pecos County (Masterson)—** | | |
| Sahara Oil Corp., Shearer-Atlantic 3 | 400 | 1490 |
| **Pecos County (Payton)—** | | |
| British-American, Payton 15 | 319 | 2088 |
| Payton 16 | 306 | 1917 |
| Cities Service, Dorr 1 | 297 | 2082 |
| Pantex Oil Corp., Pecos River 4 | 349 | 1865 |
| Sun & Atlantic, Payton 10 | † | 1952 |
| **Pecos County (Wildcat)—** | | |
| Ben Dansby Jr. et al, Lessenich 1 | * | 2373 |
| **Upton County (Gulf-McElroy)—** | | |
| Gulf, J. T. McElroy 190 | 130 | 3042 |
| **Upton County (McCamey)—** | | |
| Hines et al, Hobbs-Republic 1 | 412 | 2295 |
| McLean et al, Burleson-Johns 2 | 1038 | 2215 |
| Shell, Baker 9 | 462 | 2206 |
| **Ward County—** | | |
| W. P. Luse & Ice, Brictson 7 | 385 | 2097 |
| Magnolia, Geo. Sealy 2-45 | 194 | 2836 |
| J. D. O'Quinn et al, Hadween 4 | 33 | 2230 |
| Sinclair Prairie, Geo. Sealy 4-47 | 320 | 3074 |
| **Winkler County (Halley)—** | | |
| Skelly Oil Co., Halley 28 | 3976 | 2842 |
| **Winkler County (Kermit)—** | | |
| Magnolia, Walton 224 | 514 | 3257 |
| **Yoakum County (Wasson)—** | | |
| Denver P. & R. Co., Whittenburg 12 | 1082 | 5126 |
| Skelly, Thomas 2 | 1081 | 5141 |
| T. P. Coal & Oil Co., Cecil-Bloomer 1 | 1680 | 5151 |

* Failures; † Junked; ¶ Million cu. ft. gas.

Simpson, logged at 5832 feet and appeared to be in sulphur-water section of the Ellenberger at 6079 feet.

Another wildcat for the Kirk area south-central Gaines County, is due to materialize. Bruce McClure et al contracted to drill Caswell 1, C SE SE PSL Section 9, Block 24, with nearby owners of short-term leases contributing.

Two outposts for the Slaughter field, Hockley County, are nearing decisive levels in the lime section. The Texas Company's Mallet 1-C, located 2½ miles southwest of production, was drilling at 4800 feet, having logged top of the solid lime at 4250 feet, or 667 feet sub-sea. Sid Richardson et al's Denton-Sun 1, situated 4000 feet northwest of production, logged this marker at 4060 feet or 519 feet sub-sea and was drilling at 4500 feet. Texas Pacific Coal & Oil Company's Lauhoff 1, NEc Labor 65, is a new test that offsets production in the northwest sector.

Oil-saturated zones in the Pennsylvanian section passed up by Humble Oil & Refining Company's Matador Land & Cattle Company 1, northeastern Dickens County wildcat, in drilling to 7053 feet were due to be tested late last week. Plugs have been drilled from 5½-inch pipe, which was cemented at 6924 feet with 555 sacks of cement. Production test is scheduled to be made before plugging back and perforating opposite saturation in lime at 4985-95 feet and other levels. This wildcat is located near C SW NE Section 26, Block 1, Shock & Arnold Survey, 8 miles northeast of Dickens, and on a unit of 466,526-acre lease taken from the above ranch owners in five counties early last year. The test logged top of brown lime at 2092 feet; top Wichita-Albany lime at 2958 feet; and first Dolomite at 3770 feet, with an elevation of 2476 feet. Interest in this general area was stimulated last December when Gulf Oil Corporation developed a small oil producer, which was later shut in, from lower Pennsylvanian at 7332-36 feet on the Swenson ranch in northeastern Garza County.

### *Four windmill cathodic units on Texas-New Mexico line*

The Texas-New Mexico Pipe Line Company is installing four windmill cathodic units at the following locations:

Fayette County — M.P. 121.25 near Cedar Creek-Eli Moppins and Harvey Washington property 425 feet from north line, 2500 feet from east line C. Wertzner 1/3 league.

Caldwell County—approximately 0.25 miles east of M.P. 153—Joe J. Jolley property, 2000 feet from the most southern south line, 2350 feet from the most eastern west line of Edward Pettus Survey.

Caldwell County—M.P. 157.45 E. C. Field property, 40 feet from east line, 1750 feet from south line George C. McWhorter Survey.

Pecos County—M.P. 444.28—Cordova Union Oil Corporation property—100 feet south of Pecos River, 850 feet from west line Section 25, Block 12, H&GN RR Survey.

# North Texas Fields

***K-M-A field drilling revived with 14 tests authorized. Second Sikes pool producer is 1300-feet to southwest.***

**Wichita Falls.**—Authorization of 14 new Strawn tests for the K-M-A field the past week represents the largest weekly quota of locations made since last August. This upturn in field activity is due to Sinclair Refining Company having recently agreed to construct a direct 6-inch outlet and provide a market for an additional 10,000 barrels daily. Currently the deep area has 53 operations, including 17 wells in process of completion, and 11 tests drilling with rotary above the Strawn horizon. Golding Estate and Cochran's Preston 7, SWc 57-acre lease in SE¼ H&TC Section 27, Block 7, registered an unusually large flow for the west extension of K-M-A in testing 208 barrels oil natural in 3 hours. Production is from sand at 3930-3954 feet and saturated lime at 3989-4009 feet. Top of lime was called at 3823 feet.

A failure for the lower Strawn pool uncovered mid-March by E. P. Griffin et al on the W. T. Waggoner ranch, near Diversion Lake, appeared probable when their second test missed the saturated zone in drilling to 4803 feet. This north offset to the discovery logged dry sandy-lime at 4360-4390 feet; dry lime at 4450-4505 feet and nominal oil saturation in lime at 4766-4790 feet. The producer, located in SEc H&TC Section 3, Block 4, flowed natural at rate of 760 barrels initial at 4393-4410 feet, and has a base allowable of 100 barrels daily. Griffin et al's Waggoner 3 is to be a south offset to the producer.

A second producer and 1300-foot southwest extension for the Sikes pool, northeastern Archer County, was assured when Louis Sikes et al's O. T. Anderson 1, J. S. Brooks Survey, logged favorable oil saturation in lower Strawn at 4372-4414 feet. Pipe has been cemented near the 4370-foot level for completion. Sikes et al's Ford 1, the discovery, has settled to a 40-barrel pumper from saturation at 4402-4412 feet after plugging off bottom hole water at 4437 feet. British-American Oil Producing Company's T. B. Wilson 1, 3 miles south of Mankins, was drilling at 3590 feet.

Buffalo Oil Company, Dallas, has purchased from the Consolidated Oil Company et al the northeast 288.1 acres of the latter's W. P. Ferguson 516-acre lease, W. H. Spillers Survey, K-M-A field, with 9 flowing wells in the 3800-foot Strawn sand, for a cash consideration of $700,000. This is the largest deal negotiated in North Texas in more than a year. The lease embraces portions of blocks 5, 8 and 9, and will be given 7 additional tests by the new owner. A gas-input well will also be drilled to participate in one of the cooperative pressure maintenance units being installed by natural gasoline plant operators.

#### New Pay in Bonita Area

Additional pay section for the Bonita area, eastern Montague County, was uncovered the past week through the deepening of Joe Benton & Holmes' Joe Bowers 1, SEc Section 55, MEP&P Survey, which originally showed for a small pumper last January in Strawn at 2887-2898 feet. Oil-saturated sand and sandy-shale was logged in coring to 2958 feet, resulting in 2400 feet of oil in the hole. A pumping test is underway. United Producers Company and Continental Oil Company's Langford 1, a south offset, has cemented 5½-inch casing after damaging the 7-inch string in shooting broken pay at 2920-2938 feet. Seitz-Comegys, Ltd.'s L. K. Guerin-The Texas Company 1, 5 miles north of St. Jo, Montague County, was drilling at 3635 feet. No additional shows have been reported since passing up nominal oil saturation at 2453-2472 feet.

Payne and Patterson's R. W. Kelley 1, SE SW Section 2, J. B. Graham Survey, Throckmorton County semi-wildcat, is rated at 60 barrels daily on pump from sand at 786-787 feet.

### North Texas Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Archer County (Hull-Silk)—** | | |
| J. A. Chapman-Ed. McFarlin, Wilson 1-E, sec 22 | 1200 | 4307 |
| Wilson 1-D, sec 128 | 720 | 4340 |
| **Archer County—** | | |
| Burns et al, Falls County-Atlantic 3, blk 63 | 5 | 1190 |
| Cree & Hoover, Turbeville-Texas Co. 4 | * | 1565 |
| Rathke Oil Co., C. Cowan 6, blk 16 | 5 | 1126 |
| **Archer County (Wildcats)—** | | |
| Adams O&G Co., Ray 1, sec 1 | * | 1398 |
| Bridwell Oil Co., A. Wolf 1, sec 82 | * | 1092 |
| Consolidated Oil Co., Pace-Levy 1 | * | 1200 |
| **Clay County—** | | |
| Duncan-Arnold et al, Duncan 9, blk 14 | 150 | 1200 |
| **Cooke County—** | | |
| Hutton & Witherspoon, Trueblenback 3 | * | 875 |
| Trumter Oil Co., Paulter 2 | * | 1080 |
| **Jack County—** | | |
| Buttram Pet. Corp., J. W. Cullers 1, sec 4 | * | 2091 |
| W. D. Cline et al, J. H. Wallace 1 | * | 513 |
| Dunigan & Griffith, G. T. Griffith 1 | * | 365 |
| G. M. Gillespie et al, Loving 3, sec 3345 | 125 | 3180 |
| Parks et al, Coats 6 | 2 | 498 |
| **Throckmorton County—** | | |
| Pennell et al, W. H. Thomas 1, sec 200 | * | 653 |
| **Wichita County (Asylum)—** | | |
| Pet. Producers Co.-Continental, Finkler 1 | 31 | 5152 |
| **Wichita County (K-M-A)—** | | |
| Consolidated Oil Co. et al, Ferguson 19 | 1488 | 3785 |
| Grace & Woods, Love 1 | 1200 | 4041 |
| Reed & Strong (was W. F. Hamilton), Waggoner Bros. 1 | 648 | 3846 |
| Ven-Mex Oil Co., Griffin 4-A, blk 6 | 832 | 3832 |
| **Wichita County—** | | |
| Panhandle Ref. Co., Stone 15 | * | 1851 |
| **Wilbarger County —** | | |
| King Oil Co., R. L. Castleberry 4, sec 68 | 560 | 2650 |
| Waggoner Est. 9-N, sec 104 | 35 | 1750 |
| **Young County—** | | |
| Homestead O&G Co., J. F. Knight 2 | 776 | 3796 |
| Horwitz & Oldom, Lowe 12 (key well) | * | 670 |
| Powers et al, Larimore 3, sec 253. | 12 | 588 |
| **Young County (Wildcat)—** | | |
| Craig et al, Griffin 1, sec 75 | * | 1150 |

* Failures; † Junked; ¶ Million cu. ft. gas.

# East Texas Fields

***Henderson County wildcat gets 70 barrels oil with water. Plugging operations ahead of drilling in biggest field.***

**Tyler, Texas.**—The official pumping gauge given A. J. Tyler, C. C. Smith et al's Rowe-Baker 1, northwest Henderson County Woodbine strike that has been in process of completion since mid-March, rated the output at about 70 barrels of net oil and 458 barrels of salt water daily. Production is from sand at 3143-3149 feet. The well is 3½ miles northeast of the Flag Lake pool, and on the Mexia-Talco fault trend. It is a northeast offset to a partially plugged failure drilled in 1925. The large volume of water may be partially due to the column of water in the old hole. One or more tests will be drilled near the wildcat pumper.

A failure for the Slocum area, Anderson County, occurred when John G. Mayo & Cook's Southern Pine Lumber Company 1, R. Erwin Survey, encountered water in the Woodbine after drilling to 5284 feet, with an elevation of 412 feet.

The discovery site of the Navarro Crossing field, Houston County, registered a low gas-oil ratio producer when Humble Oil & Refining Company's H. H. Dailey 2, flowed 143 barrels of 35.6-gravity oil initial through ⅛-inch choke. Oil saturation was logged in Woodbine at 5846-5853 feet, and pipe was set 1 foot off bottom to exclude the upper gas. The volume of gas was rated at 667 feet per barrel. Cities Service Oil Company's C. C. Hill 1, which is trying for a west extension of the Grapeland pool, Houston County, logged base of Pecan chalk between 4720-4750 feet, with an elevation of 452 feet, and was drilling at 5530 feet.

Plug-back operations on George Strake et al's Farrier 1, northwestern Wood County wildcat, yielded salt water in oil saturated zone passed up at 3906-3916 feet and 3930-3965 feet in filling 6570-foot depth contract. The test has been abandoned.

Two major extensions for the Opelika deep area, Henderson County, are to be sought by Tide Water Associated Oil Company, Seaboard Oil Corporation and Humble Oil & Refining Company, joint operators. The partnership has two prolific gas-distillate wells in the lower Glen Rose, and a small oil well from stray lime between the anhydrite zones. The new projects are scheduled to explore the lower Trinity series, but not to exceed 8500 feet in depth. Allie Scott 1, located at center of 97.32-acre lease, Cleveland Robb Survey, will be 13,500 feet southwest of the oil well, and J. H. Lewis 1 will be drilled 4000 feet northwest of McGee 1, latest gas-distillate completion. Lewis 1 is located midway between the north and south lines of the 136½-acre lease and 1000 feet east of the west line of the lease and J. K. Stokes Survey.

Potential producing area at Opelika is rated at more than 15,000 acres. The partnership holds lease on the bulk of this acreage, and will try for commercial oil production in the lower Glen Rose in order to utilize the reservoir in recycling gas. Profitable operation of the two gas-distillate wells and others that must be drilled on short-term leases hinges upon the installation of a condensate processing plant. No immediate market is available for the abundant supply of high-pressure sweet gas. The oil well from the stray lime averages 21 barrels daily on input gas from a nearby gas-distillate well, but this oil horizon will not support a large scale recycling project.

### East Texas Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Kilgore Area—** | | |
| Bohn & Rutledge, State School Land 1 | 290 | 3582 |
| **Kaufman County (Wildcat)—** | | |
| H. W. McGee et al, T. A. Elliott 1 | * | 3112 |
| **Leon County (Navarro Crossing)—** | | |
| Humble & Sun, E. F. Swift 1 (1300-ac) | 108 | 5906 |
| **Nacogdoches County (Wildcat)—** | | |
| McDaniels et al, Muckelroy 1 | * | 1002 |
| **Upshur County (Wildcat)—** | | |
| Gaskill Oil Corp., E. E. Arnold 1 | * | 3693 |
| **Wood County (Wildcat)—** | | |
| Strake et al, W. G. Farrier 1 | * | 6507 |

* Failures; † Junked; ¶ Million cu. ft. gas.

### *East Texas field is on down grade*

**Kilgore, Texas.**—Terminating 4 weeks of inactivity, operators have renewed development of inside locations in the East Texas field by starting 5 new tests. This new work is credited to Humble Oil & Refining Company, Magnolia Petroleum Company, Arkansas Fuel Oil Company and The Texas Company. The field bordered on a complete shutdown, the first since its discovery in October, 1930, when drilling declined to two active tests in March.

The shrinkage in total wells due to the plugging of depleted and non-commercial water producers has lately assumed sufficient proportions to indicate that the peak level was reached about March 1. On this date the field was credited with 26,021 wells, including 231 dormant and temporarily off production wells. Five wells were eliminated by plugging the past week and 11 the previous week. The restoration of the field to a 6-day production week since April 1 is due to accelerate the decline of the reservoir pressure and to cause a greater spread of the salt water table. An increase in the volume of well plugging will be a natural development if the physical condition of the field reacts to the greater production withdrawal.

Nominal amount of trading in properties is credited to the field. A cash consideration of $22,500 is reported to have been paid by Humble Oil & Refining Company and Magnolia Petroleum Company for Roger Lacy et al's R. R. Collins 1, located on a fraction of an acre site, D. Sanchez Survey, Gregg County. This well was completed last June. Jenkins Drilling Company purchased E. J. Gray and Bess Johnson's two wells, occupying portions of lots 9 and 10, Block 120, Kilgore townsite, for $32,500 cash and an additional $8000, payable from ⅛ of the production.

### *Moving in for 6000-foot wildcat in Panola County*

**Shreveport.**—Holcomb & Thomasson were moving in materials last week for a 6000-foot wildcat test in Panola County, Texas, J. W. Bird 1, (507 acre tract) George Gallaspie Survey, 4 miles northeast of two gas-distillate wells completed several months ago by Glassell & Glassell. Turner & Smith are interested in the new test, the first wildcat operation for Panola County in several months.

North of the new location C. L. Lindback of Marshall, Texas, has leased approximately 2500 acres of the E. L. and B. H. Barnett fee in the S. B. Hendricks, Thomas F. Hill, J. H. Mallory, A. L. Birdsong and adjacent surveys. Magnolia Petroleum Company secured approximately 550 acres from E. B. Larue in northeastern part of San Augustine County.

Arkansas Fuel Oil Company's Davis 1, James Adams Survey, deep test at Waskom, Harrison County, drilled lime at 5048 feet, after some slight showings higher up in the Glen Rose. At Joaquin, Shelby County, Neal & McDaniels' C. W. McDaniels 1, W. M. Snyder Survey, drilled at 5408 feet for the Travis Peak after missing production in the Glen Rose.

### South Texas Completions

**LAREDO DISTRICT**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Duval County—** | | |
| Continental, Collings 7 (Hoffman) | 250 | 2811 |
| Luling, Dimmitt 1 (WC), 4 mi s Realtos | * | 6012 |
| Magnolia, Duval County Ranch Co. 21 (201) (Eagle Hill) | 140 | 2086 |
| 22 (203) (Piedre Lumbre) | 185 | 2020 |
| Well Estate 31 (Hoffman) | 200 | 2828 |
| Miller, Miller 4 (Longhorn) | 500 | 4365 |
| Miller 5 (Longhorn) | 500 | 4903 |
| Sun, Brueggemann 12 (Fitzsimmons) | 450 | 4289 |
| Texas, Duval County Ranch Co. 25 (Cedro Hill) | 115 | 1459 |
| **Jim Hogg County—** | | |
| Atkinson & Atkinson, Yeager 1 (WC), Randado area | * | 1530 |
| Humble, Bass 10 (Kelsey) | 250 | 4738 |
| **McMullen County—** | | |
| Ezzell, Fee 35 (Ezzell) | 95 | 1485 |
| Grubstake, Lark 1 (Calliham) | 15 | 1035 |
| Jones, Ezzell 65 (Ezzell) | 47 | 1545 |
| 67 (Ezzell) | 36 | 1530 |
| 72 (Ezzell) | 41 | 1561 |
| 74 (Ezzell) | 44 | 1558 |
| 75 (Ezzell) | 179 | 1548 |
| 76 (Ezzell) | 162 | 1559 |
| Marion Production, Lark 9 (Calliham) | * | 1057 |
| Womack & Sturm, Leischner 1 (WC), 5 mi sw of Wentz | * | 1532 |
| **Starr County—** | | |
| Dodd, Wood 8 (S. Ricaby) | * | 2049 |
| Hall, Guerra 1 (WC), share 253, por 69, J. Mier subd. | * | 552 |
| **Webb County—** | | |
| Gilcrease, Trafton 1 (WC), survey 281 | * | 2560 |
| **Zapata County—** | | |
| Buffalo, Hinnant C-5, (Mirando Valley) | 225 | 1994 |

* Failures; † Junked; ¶ Million cu. ft. gas.

# Southwest Texas Fields

***Jim Wells County gets fourth new field of year. Wildcat 10 miles northwest of Alice finds oil sand.***

**Corpus Christi.**—Jim Wells County scored its fourth new field of 1939 last week with Lewis Production Company and Ike Howeth's Adams 1 showing for an excellent producer from the Frio sand. The test had drilled plugs and was in final stages of completion as the week closed.

The prospective field opener is located 777 feet from the southwest line and 150 feet from the southeast line of a 250-acre lease in Section 122, William Adams Survey, about 1½ miles southwest of the shallow Alfred pool and 10 miles northeast of Alice. It is 637 feet northwest of a test drilled on the same tract by Edwin M. Jones.

This discovery topped a lime cap at 4661 feet, below which an oil sand was found at 4666-4674 feet. On a drill stem test at 4661-4674 feet the test recovered 500 feet of oil under 95 pounds working pressure through ¼-inch chokes in 10 minutes. The bottom-hole pressure was 1900 pounds. Crude corrected to 45.2 gravity.

In the meantime, interest was keenly centered around a test being drilled by Texas Gulf Producing Company on the Antonio Perez "Garcia" land in the northeast corner of a 200-acre tract in the M. Barrera Survey, 10 miles northwest of Alice. The well found excellent oil sand at 6438-6441 feet and on a drill stem test with seat at 6404 feet failed to recover anything. This was attributed to slipping drill stem and a new test was being run.

Nueces County's recently discovered Riverside field, which proved disappointing after several tests atop the geophysical picture and virtual offsets to the single oil producer failed to find crude, now comes back into the limelight. Seaboard Oil Corporation of Delaware's Wilson 3, 753 feet north of the oil producer, cored an oil sand and on a drill stem test of 5004-5010 feet recovered 1150 feet of pipe line oil and 90 pounds pressure in 10 minutes through ¼-inch chokes top and bottom. The bottom-hole pressure was registered at 1950 pounds. The hole was cored one foot deeper to 5011 feet and casing landed on bottom.

In Refugio County, preparations are being made for an extensive drilling program in the vicinity of the south extension to Melon Creek field. Quintana Petroleum Corporation's Tom O'Connor 3-C, after coring oil sand at 5880-5895 feet, was completed for an initial flow of 606 barrels of oil per day through ¼-inch choke with 975 pounds working pressure. The test is a mile south of the field opened several months ago by the Copano Oil Company.

One of the outstanding developments of the week was in Francitas field of Jackson County, where a 7900-foot sand was uncovered in a 4000-foot southeast extension. The discovery lowers the producing level of the field approximately 600 feet, and provides the third well for the area. Wynn Crosby Drilling Company's Kopickny 1, in block 5, cored sand with oil show 7918-7967 feet and set casing on bottom. The well was being completed as the week closed. The well, together with another producer owned by this company, and several hundred acres of leases upon the structure were involved in a deal whereby this concern sold an undivided one-half interest to the British American Oil Producing Company. The consideration was not announced, but it is understood to include a certain amount of cash, plus agreements for development.

Mills Bennett's Lowrance, west of this potential producer, cored what probably is the same sand at 7949-7960 feet, but tested salt water and was going ahead below 8000 feet. It tested distillate and gas in upper zones.

**CORPUS CHRISTI DISTRICT**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Aransas County—** | | |
| Atlantic, Carlisle 1 (McCampbell) | 825 | 7245 |
| Rutherford & Moran, Young 1 (McCampbell) | 1100 | 7161 |
| **Brooks County—** | | |
| Humble, McGill 5 (Kelsey) | 450 | 6402 |
| **Cameron County—** | | |
| Wedegartner, Sams-Porter 1 (WC), 3½ mi se San Benito | * | 1043 |
| **Goliad County—** | | |
| Cullen, Pettus 1 (WC), 8 mi w and slightly n of Goliad | * | 8606 |
| **Hidalgo County—** | | |
| Brinkoeter, Guerra 3 (Samfordyce) | 96 | 2857 |
| **Jackson County—** | | |
| Porter, Drushel 5 (Cordelle) | 375 | 2716 |
| **Jim Wells County—** | | |
| Atlantic, Bankers Mortgage 1 (East Alice) | 350 | 5373 |
| Graham, Adams 1 (Clark) | * | 5850 |
| Magnolia, Seeligson 11 (East Premont) | 1250 | 6598 |
| Premont, Hewitt 1 (WC), 1 mi w Premont townsite | * | 7507 |
| **Nueces County—** | | |
| H. D. & H., Wright 1 (Riverside) | * | 5890 |
| Process, Ingram 1 (Agua Dulce) | * | 4768 |
| Renwar, Kenedy 3-C (Turkey Creek) | 350 | 4051 |
| Shell, Griffin 1 (WC), Riverside area | * | 7510 |
| Sinclair Prairie, Isensee 5 (Saxet) | 400 | 5830 |
| Southern Minerals, King 16 (Richard King) | 38 | 6143 |
| Sun, McCann 8 (Luby) | 500 | 5062 |
| Wellington, Richardson 1 (Clara Driscoll) | 350 | 7560 |
| **Refugio County—** | | |
| Coronado, Michna 2 (LaRosa) | 600 | 6355 |
| Hewitt & Dougherty, Rooke 4 (LaRosa) | 500 | 6345 |
| Houston, Pratt-Hewitt-Rooke 62 (Refugio) | 2700 | 6222 |
| Quintana, Heard 8 (Tomoconnor) | 2000 | 5925 |
| O'Connor C-39 (Tomoconnor) | 2300 | 5925 |
| Windsor, Power Heirs 1 (WC), Tomoconnor area | 600 | 6516 |
| **San Patricio County—** | | |
| Abbott & Traxler, Ruhmann 1 (McCampbell) | 1100 | 7145 |
| Bryant, Cavender 1 (McCampbell) | 1100 | 7160 |
| Graham, McCampbell 2-B (McCampbell) | 1100 | 7172 |
| Grote & Corgey, King 3 (McCampbell) | 1100 | 7140 |
| Houston, Baldwin 2-A (East White Point) | 600 | 5680 |
| Richardson, Jeter 1 (McCampbell) | 1000 | 7181 |
| Sinclair Prairie, Womack 1, East White Point) | 650 | 5675 |
| Smith, Cavitt 2 (McCampbell) | 900 | 7145 |
| **Victoria County—** | | |
| Barnsdall, McFaddin 23 (McFaddin) | * | 4260 |
| McFaddin 24 (McFaddin) | 450 | 4412 |
| **SAN ANTONIO DISTRICT** | | |
| **Bexar County—** | | |
| Schreiner, McCloskey 1 (WC), 20 mi sw San Antonio | 2 | 1400 |
| **Caldwell County—** | | |
| Hughes, Hardeman 1 (Luling) | 115 | 2183 |
| **Guadalupe County—** | | |
| Diamond-Half, Roamel 2 (Darst Creek) | 145 | 2531 |
| **Kendall County—** | | |
| Dewey, Seidensticker 1 (WC), 3 mi ne Comfort | * | 1025 |
| **Medina County—** | | |
| Ewing, Riff 1 (Dunlay) | 8 | 716 |
| Wagener, Medina Irrigation Farms A-35 (Chicon Lake) | ½ | 385 |
| **Travis County—** | | |
| Jackson & Zizinia, Carlson 1 (WC), Will Caldwell sur | * | 945 |

* Failures; † Junked; ¶ Million cu. ft. gas.

## *Pettus sand yields new pool in Duval County*

**Laredo.**—Duval County's Pettus sand play contributed another oil pool with the completion last week of Southland Life Insurance Company 1 of Henderson Coquat and Amselma Oil Company. The well, in the southeast corner of Section 7, 2 miles southwest of North Sweden field, flowed 170 barrels on a 24-hour gauge through 5/32-inch choke. It showed pressures of 600 pounds on tubing and 1240 pounds on casing. Pettus sand, saturated top to bottom, has been cored at 5286-98 feet, casing being landed at 5287 feet.

The discovery is on a farm-out from the Hiawatha Oil & Gas Company and is on a geophysical picture worked out by the latter company.

This general trend has been the center of an extensive drilling program for months, with several new pools being opened in the various Jackson sands.

Zapata County, likewise, was in the spotlight of attention with E. A. Thompson et al's Ramirez 1, just south of the Lopeno field, continuing to test the Mount Selman formation at 2352 feet. New rig had been installed and the bridge drilled out. It showed live oil on first tests, but the hole bridged several times.

A 3500-foot southwest extension to the White Creek field of Live Oak County appears probable with G. A. Gage II, setting casing to complete Cox et al 1, block 3012. The well cored oil sand at 1292-99 feet.

## *Two Samfordyce outposts showing for producers*

**McAllen.**—Two outpost wells east and northeast of the new producing sector of Samfordyce, Hidalgo County, are in the sand and showing for producers. This area was opened several weeks ago through the completion of a 3400-foot well by Fohs Oil Company. This company's Mrs. Annie Shelton 1, Share 245, Porcion 40, and 3000 feet east of the deep discovery, cored gas sand at 3402-15 feet, oil sand at 3415-28 feet, and salt water sand 3450-75 feet. The hole is being cored ahead below 3510 feet.

John Messenger's Chapa 1, 3000 feet northeast of the discovery, found the sand at 3362-91 feet carrying gas and again at 3408-27 feet. The lower portion of the bottom sand carried oil showing. Pipe was landed at 3458 feet and completion is to be attempted through perforations.

About 1½ miles farther northeast, Ben H. King has resumed drilling and

is below 4495 feet on Osca Daskam 1, a project to 6000 feet. The well found several salt water sands above this level. Between it and the field, Homer P. Lee is obligated to commence a test about May 20.

**Plans Three Deep Ones**

Atlantic Refining Company has revised the lease situation on its block in the Weslaco area of Hidalgo County, and will shortly commence development of the properties. It is understood that three more 9000-foot holes will be drilled, then a recycling and natural gasoline plant constructed. The discovery distillate producer is the only well in the field.

An extensive leasing program has been under way in the deep basin for several weeks, bringing the promise of several more tests for both Cameron and Hidalgo counties.

Sun Oil Company's Speer 1, Section 238, 4800 feet west of a gas producer and 7600 feet west of oil production in the Sun pool of Starr County, is in as a crude well. Perforating casing at 4966-72 feet, the well flowed 208 barrels of oil and 20 barrels of water on a 24-hour gauge through 3/16-inch choke. Pressures were 800 pounds on tubing and 1475 pounds on casing, with gas/oil ratio 1000:1.

Magnolia Petroleum Company was cutting out drill pipe in M. M. Garcia 1, 2 miles northeast of Barbacoas field, Starr County. The test blew out from a sandy section at 6078-84 feet, ran wild and stuck drill pipe. It was killed and efforts are not being made to clear the hole.

In the north central portion of Jim Hogg County, Humble Oil & Refining Company's Mestina Oil & Gas Company 1 is a failure, having been abandoned at its 7000-foot contract.

## *Lee county well makes flow of half and half*

**San Antonio.**—Fred Pederson et al are attempting to complete Brown 1, Hudson Survey, Lee County, at 6424 feet. The well flowed for two hours at the rate of 50 barrels per hour after swabbing for a short time. Fluid recovered by swabbing was half oil and half water, but the flow was pipe line oil. If the water can not be exhausted, a squeeze cementing job will be attempted. The well will be deepened if the water can not be shut off by cementing.

## *Texas permits*

The Texas Railroad Commission last week approved permits for drilling 167 new wells in Texas, 78 less than were allowed the week before.

No permits were allowed in the East Texas field, although 6 locations were reported from the remainder of the East Central Texas area.

West Texas operators listed 28 locations, including 10 in Ector County, while 30 permits were reported from West Central Texas. The commission approved permits for drilling 29 new wells in Southwest Texas, including 11 in Duval County, and Gulf Coast operators were allowed 24 permits.

There were 35 new locations listed from the North Texas area, including 20 in Wichita County, while Panhandle producers were allowed 15 permits.

# Texas Gulf Coast

***Matagorda County wildcat getting production test. Well mile from Sandy Point prepares to test show.***

**Houston.**—Five miles west of Palacious, Matagorda County, Sun Oil Company is making a production test on Cavallin 1, J. Duncan Survey. The well kicked off last Friday morning after casing was perforated with 30 shots from 8620 to 8645 feet. It was flowing mud and wash water through a 11/64-inch choke and tubing pressure was 2700 pounds; casing pressure, 2400 pounds. The well was not showing any oil at a late hour April 14 and the hole is expected to be cleaned out during the week-end. The wildcat has shown it will open a gas or oil producing area for Matagorda County.

Over a mile northwest of production at Sandy Point, Brazoria County, Hamman Exploration Company's Darrington State Prison Farms 1, A. McFarland Survey, was preparing to make a production test of a deep Vicksburg sand. Reports state the hole is bottomed at 8885 feet with seven-inch casing set. The well is to be perforated near bottom. Two 750-barrel storage tanks have been installed and a 10,000-pound test Christmas tree. The well is also reported to have logged the upper sand found at Sandy Point.

**To Test Outpost**

Stanolind Oil & Gas Company was preparing to make a production test on Tassie Lotz 1, over a mile east of production at Turtle Bay field, G. B. Jamison Survey, Chambers County. After a drill-stem test, which showed oil and water, screen was run. Lotz 1 was perforated with 15 shots from 6547 to 6552 feet and an 18-minute test was made. The fluid rose to the top of the testing tool in 12 minutes and the well started flowing oil in 14 minutes. It flowed 32-gravity oil for four minutes and then was killed. Seventy feet of muddy salt water was recovered in the bottom of the tool. Pressure was 700 pounds. This well showed oil in the same horizon from which Turtle Bay field is producing. Completion of the well as a producer probably will start a new drilling campaign.

Algoa prospect, Brazoria County, looked disappointing again last week when a production test was made by Wynn Crosby's Wilson 1 and salt water was recovered. This is the second time that the wildcat has shown salt water on tests. Last week the casing was perforated with 48 shots from 8865 to 8880 feet and the well was washed for one hour and 40 minutes and it kicked off making gas and fluid with an odor of oil. The flow line froze and the well was killed. After opening it again the well flowed an estimated 30 barrels of salt water per hour with a pressure of 250 pounds.

A new Vicksburg producing sand was discovered 1500 feet north of Thompsons, Ft. Bend County, when H. N. Naylor brought in O. S. Musselman 1, H. Chriesman Survey, from 7800 feet. The well flowed 10 barrels of 35-gravity oil per hour through a 1/8-inch choke with a tubing pressure of 1600 pounds. Thompsons is producing from Miocene sands at 3050 to 4000 feet and Oligocene sands at 5100 to 5409 feet. From these two sands it is estimated that the field will produce over 210,000,000 barrels of oil. With the new sand on the north flank of the field the estimated ultimate recovery of the field will be increased several million barrels of oil.

South of the first Wilcox oil well at Ace, Polk County, Shell Petroleum Corporation's Doucette 1, was plugged to 7795 feet last week from 8363 feet, where a production test was made in Lower Wilcox formation. Operators will make a test of Upper Wilcox sand at 7742 feet, where the discovery well was completed. Last week Doucette 1 was plugged back from 8553 to 8380 feet and 5½-inch casing was set. It was perforated with 10 shots from 8360 to 8363 feet. The well flowed 17 barrels

**Texas Gulf Coast Completions**

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Anahuac—** | | |
| Humble, Wilcox 8 | ¶½ | 7032 |
| **Barbers Hill—** | | |
| Atlantic, Fisher 1 | * | 6342 |
| **Batson—** | | |
| Jordan Drilling Co., Marrs McLean 2 | * | 5608 |
| **Cheek—** | | |
| Humble, Todd 2 | * | 7841 |
| **Fairbanks—** | | |
| Amerada-Stanolind, Hahl K-4 | 184 | 6848 |
| Spaulding A-4 | 108 | 6848 |
| Johnson & Johnson et al, Charters 2 | 132 | 6840 |
| Owenby Dr. Co., White 4 | 181 | 6852 |
| **Friendswood—** | | |
| Humble, Herman Hospital B-1 | 576 | 6045 |
| West Prod. Co. 13 | 600 | 6047 |
| West Prod. Co., Herman Hospital 1 | 552 | 6046 |
| **Garwood—** | | |
| Coycle Concord, Powell 4 | 25 | 5926 |
| **Hardin—** | | |
| The Texas Co., R. R. Smith 2 | 528 | 7640 |
| **Hastings—** | | |
| Humble, Beach 1 | * | 6640 |
| **League City—** | | |
| Midstates, Stewart-Ross A-2, dr to 10,345 ft, pb and comp | 201 | 8973 |
| **Mykawa—** | | |
| Sam Harrison, Minnetex Farms 1 | * | 6419 |
| **Satsuma—** | | |
| Cron & Cracey, Zagst 1 | * | 6952 |
| **Segno—** | | |
| Humble, Kirby Lbr. Co., 11-B | 313 | 8205 |
| **Silsbee—** | | |
| Humble, Theus 1 | 307 | 6812 |
| **South Bay City—** | | |
| Hamman Exploration Co., Slone 3 | 238 | 9185 |
| **Thompsons—** | | |
| Gulf, Booth A-X-32 | 101 | 3156 |
| H. N. Naylor, Musselman 1 | 240 | 7800 |
| **West Columbia—** | | |
| General Crude, Campbell Est. 1-B | * | 7000 |
| Mike Hogg, Fee 6 | 449 | 5539 |
| The Texas Co., Phillips 12 | 600 | 5665 |
| **Harris County—** | | |
| Hargrove and Hunter, Griffith 1, Mt. Houston area, A. Smith sur | * | 4141 |
| **Jefferson County—** | | |
| Humble, McFaddin State B-13, McFaddin Beach prospect, in Gulf of Mexico | * | 6576 |
| **Montgomery County—** | | |
| Housh & Thompson, Graham 1, West Conroe area, M. Connor sur | * | 5010 |
| **Wharton County—** | | |
| Humble, Ecker 1, Danevang prospect, B.S.&F. sur | * | 6641 |

* Failures; † Junked; ¶ Million cu. ft. gas.

of oil and 155 barrels of salt water through a 12/64-inch choke. Tubing pressure was 200 pounds and casing pressure was 2450 pounds.

Midstates Oil Company's Stewart-Ross 2-A extended the League City, Galveston County, southeasterly last week when it came in flowing 201 barrels of 21.6-gravity pipe line oil. The hole was perforated with 20 shots from 8968 to 8973 feet. Tubing and casing pressures were 1500 pounds.

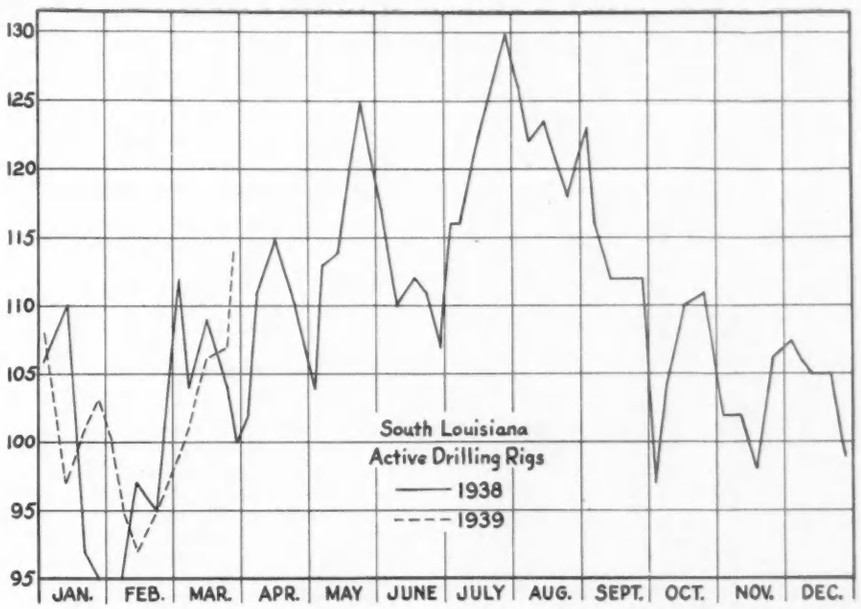
Southwest of production at League City Gulfboard Oil Company and Salt Dome Oil Corporation's Ross-Stewart 2 was flowing oil at the rate of 7½ barrels per hour through a ⅛-inch choke with a tubing pressure of 1100 pounds and a casing pressure of 1300 pounds. The well was perforated with 24 shots from 8690 to 8695 feet. This is a shallower sand than that from which the other wells are producing.

The second failure for the Mount Houston prospect, Harris County, is Hargrove and Hunter's Griffith 1, 500 feet northwest of Jack Frazier's Griffith 1, which had a show of oil in the Miocene formation, A. Smith Survey. The former was drilled to 4141 feet and cored salt water sands from 4083 to 4090 feet.

Northwest of production at Satsuma field, Harris County, Cron & Cracey's Zagst 1, F. Fry Survey, was abandoned at 6952 feet after coring salt water sands from 6951 to 6952 feet.

Over a half mile northeast of production at Hastings, Brazoria County, and in Galveston County, Humble Oil & Refining Company abandoned H. L. Beach 1, B. S. & F. No. 6 at 6640 feet in salt water sands. Top of the sand was found at 6590 feet.

East of production at Segno, Polk County, Humble Oil & Refining Company completed another Wilcox producer. Kirby Lumber Company 11-B flowed 11 barrels of pipe line oil per hour through a quarter-inch choke. Casing was perforated with 20 shots from 8115 to 8125 feet and with 40 shots from 8160 to 8180 feet.




pleted Haas Investment Company 1, Section 7-2s-3e, at 8581 feet for 160 barrels of 44.4-gravity oil. Texas Gulf Coast's lone contribution was Sun Oil Company's Caplen field in Galveston County. Cade 2, the discovery well, was completed in Miocene sand at 7478 feet for 307 barrels of 34-gravity oil. This, it will be noted, was the shallowest of the three discoveries. Five years ago it would have been considered a deep field.

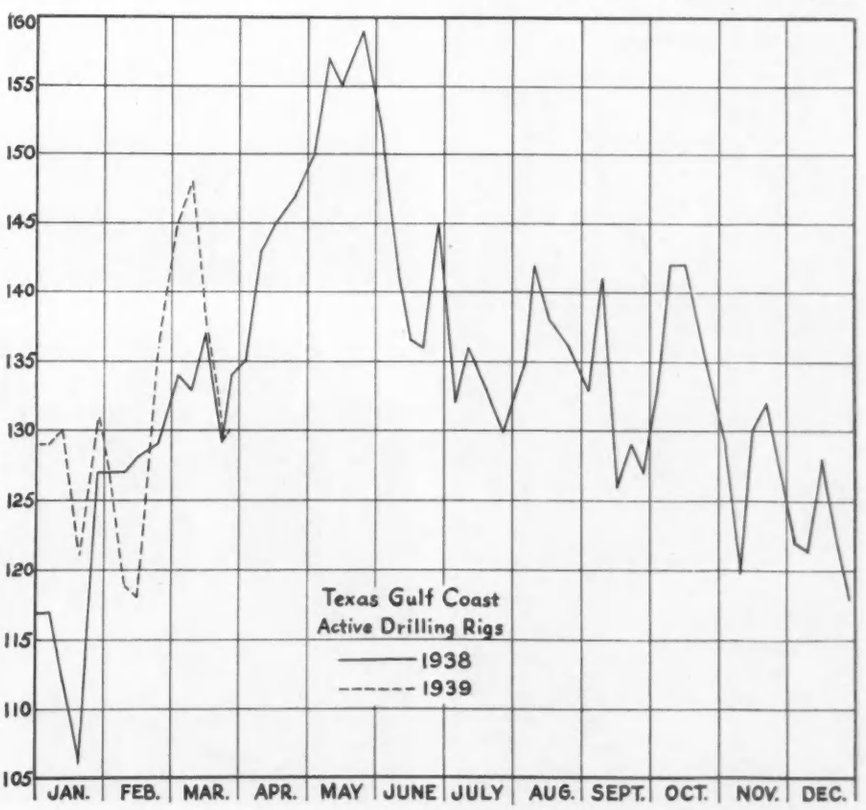
Completions for the Gulf Coast during the first quarter totaled 497, a slight decrease from the 505 completed in the corresponding period of last year. Breaking the figures down, it is seen that the Texas side accounted for 366 of last quarter's finished jobs, while South Louisiana accounted for 131. For Texas

## Coast Drilling Prospects Continue Bright

WITH three new fields and 16 new sands, the record of Coastal Louisiana and Texas during the first quarter of 1939 was an impressive one, winding up with more rigs in operation than were running at the end of the first quarter last year. The results, however, are less conspicuous than those of 1938's opening quarter, when 12 new sands and 10 new fields were chalked up.

By the end of March South Louisiana had reported two field discoveries and 13 new sands. Texas Gulf Coast reported the balance, a rather unusual showing in view of the fact that the latter area consistently had at the end of each week substantially more rigs in operation than South Louisiana. There was only one week during the quarter when South Louisiana rigs in operation came to within 14 of the number in operation in the coastal region of the neighboring state. Most of the time the span between the two was in excess of 20 rigs, Texas at the end of one week, that of March 7, having 47 more rigs in operation than South Louisiana.

The new fields for South Louisiana were Potash, a Miocene sand discovery in Plaquemines Parish, brought in when Humble Oil & Refining Company's Orleans Levee Board 37, Section 13-18s-15e, was completed at 8070 feet for 552 barrels of 28.2-gravity oil; and Eola, a Wilcox sand area in Avoyelles Parish brought in when Sid Richardson com-

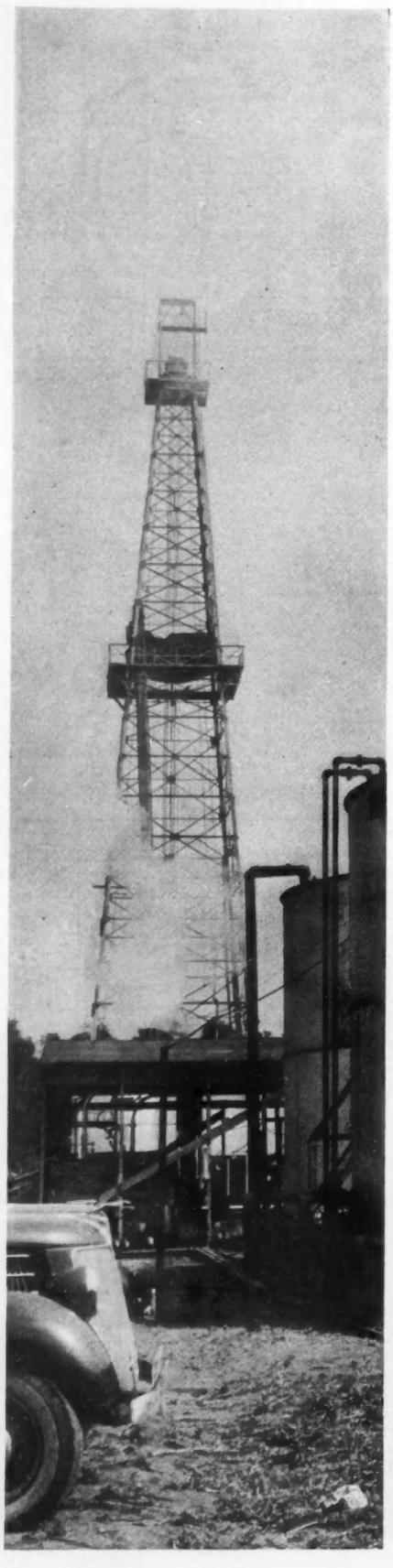


this represented a gain of 7 completions, for South Louisiana, a decrease of 15 when compared with figures for the first three months of 1938. The Texas increase was due primarily to flush development at Friendswood and Fairbanks.

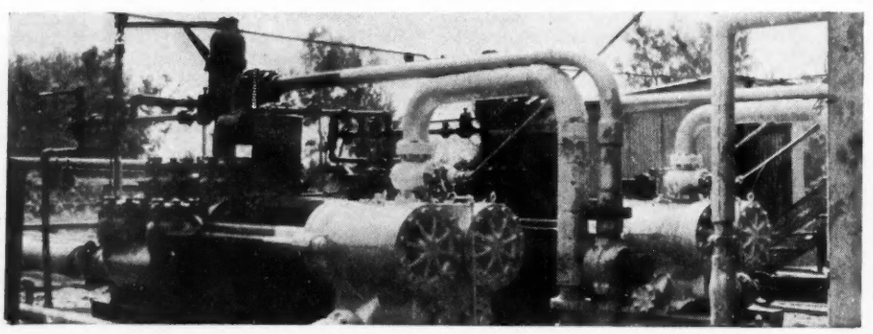
Some brightness for the outlook for the second quarter of the year exists for both divisions of the coast, if drilling rigs in operation can be used as a yardstick for predicting completion totals. Both divisions have more rigs in operation than they had at the end of March, 1938, Louisiana showing 114 drilling as against 104 at the opening of the second quarter last year and Texas showing 130 against 129.

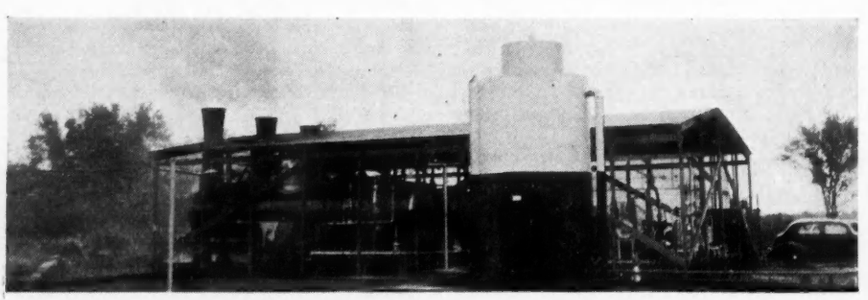
Possibly the anticipated increase in drilling will bring footage figures back equal to those of the first quarter of 1938. The first three months of 1939, however, failed to equal those of last year in footage, the figures for Texas Gulf Coast being 2,071,691 for 1939 and 2,184,142 for 1938; those for Coastal Louisiana being 726,758 for 1939 and 859,342 for the first quarter of 1938.

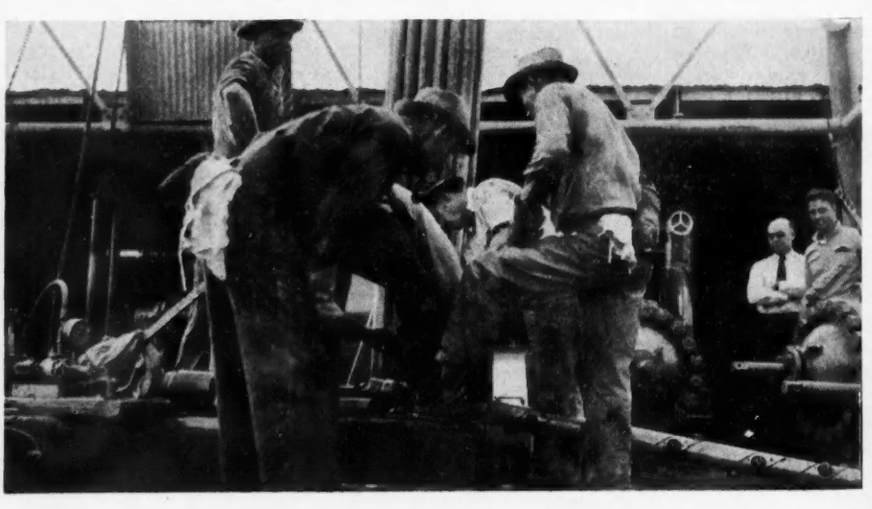
Looking back over the records one finds wildcatting becoming more expensive in both sectors of the coast. Far more prospect holes are having to be put down today to uncover a new field than had to be put down even as recently as a year ago. For example, the ratio of wildcats drilled to new fields found in the Texas Coast was 17:1 for the quarter just closed; the first quarter of last year the ratio was 21:5. South Louisiana only drilled 20 wildcats for 5 new fields in the first quarter of 1938, but this year the count was 7 to 1, or 12 dry holes in obtaining 2 producers. Wildcat completions in the two sectors for the first quarter of 1938 and 1939, respectively, were as follows: Texas



**South Louisiana, one of the deepest producing areas in the world, is also one that calls for modern equipment capable of combating high pressures as well as attaining great depths. Illustrative is the rig shown on this page. It was used to drill Vendome Petroleum Company's Kennelworth 1, recent discovery well of St. Bernard field in the parish of that name. The test went to 11,469 feet, though production was obtained from 10,628 feet. An idea of the type of the rig may be gathered from the following partial specifications: Derrick, 136-foot; substructure, steel, reinforced with heavy bolts; foundation, all concrete; two pumps, 20-inch with 7-inch pistons, operated under 1400 pounds pressure; four 130-horsepower boilers equipped with superheater. The rig has been kept spick and span, and, partly because of the crew's reputed mania for using a paint brush and an oil can whenever the opportunity presents itself, has been referred to as the "Golden Rig of Louisiana."**







Gulf Coast: 21 and 17; South Louisiana, 20 and 14.

**Production Gains**

Both sectors of the Gulf Coast showed substantial production increases in the first quarter of the year over that of last year, the figures for the Texas portion being 19,539,250 and 17,320,350 barrels; those for South Louisiana being 17,316,850 and 15,883,200 barrels.

South Louisiana continues to be one of the outstanding deep-drilling areas of the world, as indicated by the above mentioned new sands and fields. So far this year 8 wells have penetrated formations below 11,000 feet, one went to 12,770 feet. Continuance of this tendency to drill deeper wells is assured for the time being by the keen interest manifested in possibilities of the Sparta-Wilcox trend.

## *Permanent buildings urged for Oil-World Exposition*

Permanent exhibition buildings for the Oil-World Exposition on its own grounds was urged by Frank S. Carothers, vice president of Norvell-Wilder Supply Company, in addressing the Houston Salesmanship Club last week.

Carothers pointed out that the first exposition, in 1937, was held in an uncompleted building, and the forthcoming show would be in a completed Coliseum; but in order to accommodate the tools and machinery to be shown it had been necessary to build an annex and utilize a considerable space on the ground floor of the building.

Continuing, he stated that there were disadvantages to the present arrangements for exhibiting space. "A great many of the manufacturers and supply companies show and demonstrate equipment that requires foundations. Such foundations can only be temporary under present conditions and since they cost a lot of money to install, some of the companies do not feel inclined to do the necessary construction work. Others do build expensive foundations to the extent that is absolutely necessary and have to repeat the expense at each exposition. This naturally increases the cost of their exhibits. Other exhibitors would like to construct houses of their own; and while some do erect buildings of a temporary nature, there is here also an additional expense that could be eliminated if they could put up permanent buildings and reoccupy them at each exposition.

"The solution, of course, is for the Oil-World Exposition to have its own ground with its own buildings. Equipment manufacturers could then select a space for use and reserve that space for future expositions. Those who want buildings of their own could also select the site for them and occupy them during every show. The Oil-World Exposition could lay out its own buildings and so design them as to provide maximum facilities for showing equipment. The exposition would then be able to give better service to the exhibitors, and both the exhibitors and the exposition could increase the value of the tool and machinery displays to the oil men who visit the show to learn everything possible about the equipment which is such a vital factor in efficient performance of his operations."

# South Louisiana

***Test finds new shallow sand at Golden Meadows. Eola outpost continues drilling after showing oil.***

**Lake Charles.**—Mar-Tex Oil Company discovered a new shallow sand at Golden Meadows field, Lafourche Parish, when a drill-stem test was made on Falgout Holding Company 1, but the hole is being carried deeper for the regular pay horizon. The well logged oil sands at 7171 to 7202 feet, and a 15-minute test recovered 36 stands of pipe line oil and 100 pounds pressure through quarter-inch chokes. The hole was cored deeper and additional broken shows of oil were observed. Another drill-stem test at 7230 to 7295 feet recovered 56 stands of salt water and no oil. At the end of the week was down to 7405 feet in shale. The Texas Company's L. L. E. Golden Meadows was drilling at 12,124 feet in shale, below the regular 8500-foot producing horizon.

Over 3000 feet southeast of production at Eola, Avoyelles Parish, J. Edward Jones' Haas Investment Company 1 was drilling in shale at 7800 feet at the end of the week after logging saturated oil sands in Sparta formation from 7498 to 7522 feet. The well has cored oil sands in the Cockfield and Sparta, and is running about eight feet lower than the discovery well. The Wilcox is the next sand expected, and if this is only eight feet lower than the discovery well the indications are that the field will lie mostly to the south and east.

**Will Test Wilcox**

Northeast of the Eola discovery well, Pomo Petroleum Company's Sentell 1 was bottomed at 8578 feet in salt water sand, topped at 8570 feet. Wilcox oil sands were cored at 8500 to 8570 feet. Five and half-inch casing was set at bottom and will be perforated in the oil sand. This well is about 40 feet lower than the discovery well. Pomo Petroleum Company has made location for Sentell 2, 900 feet south and east of Sentell 1.

Last week Gulf States Exploration Company of New Orleans purchased Sam Haas' 17-acre tract, east of the Pomo Petroleum Company's well, for a consideration of $30,000 and a well. Gulf States is to receive the first $150,000 out of oil and then the tract is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operated on a 50-50 basis. About a mile east of the Sam Haas 17-acre tract Continental Oil Company closed on the Merchant Planters properties and took ⅞ mineral interest in certain leases in Section 8, 9, 16 and 17-2s-3e. The deal calls for drilling obligations. On the Sam Barone tract east of production, J. Edward Jones is planning to drill a well after Haas Investment Company 1 is completed. Amerada Petroleum Corporation is reported to be preparing to drill two wells north of the discovery well on the Marchive tract in Section 6.

### To Work Over St. Bernard

Vendome Petroleum Company is preparing to work over Kennelworth 1, discovery well at St. Bernard field, St. Bernard Parish. The well came in the previous week flowing oil and water from 10,608 to 10,626 feet. The last gauge was 122 barrels of oil and 188 barrels of emulsion and salt water. Operators will cement off the perforations and take in the top 10 feet of the sand from 10,608 to 10,618 feet.

The Texas Company will try to open a new oil sand at New Iberia, Iberia Parish, with a production test on A. Renaudet 1. Casing was perforated with 160 shots from 8930 to 8970 feet. Five side wall cores in this sand showed oil. The company set 1322 feet of 6⅝-inch casing at 9283 feet onto the 9⅝-inch casing set at 8338 feet.

On LaPice prospect, St. James Parish, Shell Petroleum Corporation has set seven-inch casing at 11,002 feet in Schexneyder 1. Operators may make a production test of sands up the hole, which have shown oil, or drill deeper. At 10,376 feet the well showed pipe line oil on a drill-stem test.

The California Company has made location for Long Bell Lumber Company in the Banister area of Beauregard Parish for a Wilcox test. The wildcat is 990 feet north and 1650 feet west of the southeast corner of Section 23-4s-9w. The well is on one of the two 5000-acre blocks taken from the lumber company several weeks ago. The property was worked with geophysical instruments.

### South Louisiana Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Anse La Butte—** | | |
| Paul Fly, Moresi Oil 1 (wo), otd 1440 ft | * | 1990 |
| **Caillou Island—** | | |
| Texas Co., State 55 | 600 | 5873 |
| **Choctaw—** | | |
| Louisiana Crusader, Schwing 5 | * | 8646 |
| **Bay St. Elaine—** | | |
| Texas Co., State LLE 2 | 98 | 6865 |
| **Jennings—** | | |
| Frank Bennett, United Brethren & Christ 2 | 423 | 7125 |
| **Lake Pelto—** | | |
| Texas Co., State 23 | * | 6824 |
| **Leeville—** | | |
| Texas Co., L. L. E. 70 | * | 9713 |
| **New Iberia—** | | |
| William Helis, Bullock et al, 8 | 430 | 5805 |
| Bolivar 7 | 124 | 3055 |
| The Texas Co., Bryant 6 | 108 | 2830 |
| **Quarantine Bay—** | | |
| Gulf, Plaquemines Land 1-A | 378 | 8186 |
| **Timbalier Bay—** | | |
| Gulf, State PP 4 | 80 | 5340 |
| **Vinton—** | | |
| J. V. Reddick, Vincent 4 | 45 | 2453 |
| **Iberville Parish—** | | |
| California Co., Schwing 1, Bayou Sorrel area, 95-10s-10e | * | 11,388 |
| **Vermilion Parish—** | | |
| Eberhart & Sons, Sabnier 1, 54-13s-5e | * | 1595 |

*Failures; †Junked; ¶Mil. cu. ft. gas.

## *Spacing order requires pooling of small tracts*

The Texas Railroad Commission has entered an order providing for 20-acre spacing in the North Houston field, Harris County. Wells will be spaced 466 feet from lease lines and 933 feet apart.

The regulations, however, contain a most unusual feature, and one which may mark a new trend in Texas proration. It provides that operators must attempt the pooling of leases before they are granted a permit to drill a well on a tract smaller than 20 acres. For many years the larger companies have urged that instead of drilling small tracts, they should be unitized to allow straight spacing and straight acreage proration. This is the first time such a rule has ever been included in a commission order. The rule is set out below:

"As to all tracts containing less than 20 acres, the commission, in order to prevent waste or to prevent the confiscation of property will grant exceptions to permit drilling on such tracts upon application therefor as herein above provided; provided, however, the commission will not grant an application to drill on a tract or tracts containing less than 20 acres until the applicant shall have first made a bona fide effort to pool each tract or tracts with a contiguous tract or tracts, or parts thereof, so as to establish at least, a 20-acre drilling unit. In all such cases applicant shall offer evidence at the hearing on his application concerning his efforts to enter into a pooling agreement."

The rules provide for straight acreage proration and as much as 30 acres may be assigned to the final well on the lease for proration purposes. Regulations call for 1500 feet of surface casing cemented to the surface and an oil string set with 300 sacks of cement.

# North Louisiana Fields

***Oil production established on Cotton Valley northwest. Five new wells at Shreveport; three in Vivian offshoot.***

**Shreveport.**—The northwest flank of the Cotton Valley structure was definitely established as productive of oil in the Bodcaw or "E" sand of the lower Marine series last week when Magnolia Petroleum Company's Sidney Cox 1, C NE SW 15-21n-10w, Webster Parish, was completed at 8649 feet and flowed 876 barrels of 46.2-gravity oil in first 24 hours through various sized chokes. Tubing pressure was 2000 pounds and casing, 1600 pounds. Gas/oil ratio was 1200 to 1. With elevation of 226 feet, it topped lower Marine at 8090 feet.

It was the twelfth oil producer from the "D" and "E" horizons at Cotton Valley. The well bridged a two-mile gap between the two other Lower Marine oil wells on the northwest side of the field, one of which was very small. One of them was a "D" sand producer.

The Shreveport field added five oil wells during the week to boost the total to 24 although two tests went into the salt water, but one was successfully plugged back and completed but the other late in the week had not been brought in successfully. Four new locations were made in the field.

The Vivian offshoot of the old Pine Island field, Caddo Parish, added three new wells for the week and three new locations were made. Gulf Refining Company has leased approximately 675 acres recently around Section 10-18n-15w, Caddo Parish, near Blanchard.

Union Producing Company made location and started moving materials for a Travis Peak test in the semi-wildcat Lake Bisteneau area, Bienville Parish, new location being Bienville School Board 1, NE NE 16-16n-10w. Sun Oil Company is forfeiting some of its wildcat tracts in various parts of Bienville Parish. D. J. Crawford has been assigned several hundred acres of leases by J. F. Orr, district manager for W. L. McClanahan, in township 20 north, range 7 west, near Athens, Claiborne Parish. In Lincoln Parish, Crescent Drilling Company took three leases in township 19 north, range 3 west.

E. T. Oakes, who recently completed a pumping well 1½ miles northwest of Lisbon production, Claiborne Parish, is planning another test there, probably a half mile north of the new well. There has been considerable royalty buying in that area since the extension well was standardized.

J. F. Lent, who is trying to standardize a wildcat well in the Paluxy at 3296 feet in Section 17-10n-10w, Natchitoches Parish, has assembled a block around Section 4-10n-9w, for a proposed 5500-foot test to start by May 10. In Morehouse Parish, township 20 north,

### North Louisiana Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Bossier Parish (Sligo)—** | | |
| Triangle Dr. Co., Sandidge 1, 14-17-12 | ¶30 | 5134 |
| **Caddo Parish (Vivian-Pine Island)—** | | |
| F. W. Martin & Co., Browning 3, 33-22n-16w | 80 | 2458 |
| Tippett Oil Co., Stalcup 2, 34-22n-16w | 200 | 2456 |
| Browning 1, 22-22n-16w | 200 | 2654 |
| **Caddo Parish (Shreveport)—** | | |
| R. E. Allison, S. J. Harman 1, 34-18n-14w | 528 | 5599 |
| La. Real Est. Dev. Co. 1, 4-17n-14w | 432 | 5608 |
| C. H. Lyons et al, McFadin 1, 3-17n-14w | 360 | 5631 |
| Hurricane-Delta, S. J. Harman 1, 34-18n-14w | 180 | 5610 |
| **Claiborne Parish (Homer)—** | | |
| Sinclair Prairie, Langston 10, 18-21n-7w | 8 | 1408 |
| **Sabine Parish (Zwolle)—** | | |
| Cantwell & Quick, Sabine 1, 8-7n-13w | 300 | 2339 |
| Williams & Spier, Byrd 1, 1-7n-11w | * | 2841 |
| **Webster Parish (Cotton Valley)—** | | |
| Hunt Oil Co., Hodges 1, 11-21n-10w | 150 | 5967 |
| Magnolia, Cox 1, 15-21n-10w | 876 | 8649 |

*Failures; †Junked; ¶Mil. cu. ft. gas.

range 4 east, The Texas Company has a seismograph unit at work. C. B. Pennington is adding to a 3000-acre block he acquired some time ago in the southern half of township 1 south, range 2 east, Rapides Parish. Sinclair Prairie Oil Company has recently acquired more than 6000 acres in several tracts in Rapides Parish. In township 1 north, range 2 east it acquired 3725 acres; it took 348 acres in township 1 north, range 3 west; secured 1400 acres in township 4 north, range 1 east and the rest in townships 2 and 3 north, ranges 1 and 2 east and 1 west.

Union Producing Company is below 9152 feet in Walker Unit 1, C SE 30-18n-8w, Webster Parish, deep test at Dubberly. West of this test Union Producing Company has just secured from J. P. Evans, from whom it acquired its Dubberly holdings, an additional 160 acres evenly divided between Sections 24 and 25-18n-9w, on the same terms as the other acreage there was assigned this company. North of Cotton Valley, Webster Parish and between that field and Shongaloo, H. L. Hunt has acquired several hundred acres of leases from Seaboard Oil Corporation in township 22 north, range 9 west and in Sections 25 and 36-22n-10w.

At Shongaloo, Magnolia Petroleum Company continued testing Roseberry Unit 1, C SE 29-23n-9w, discovery Lower Marine oil well there. The well had flowed 250 barrels in 24 hours the preceding week. Last week after re-perforating casing from 9179-9188 feet, the well flowed 35 barrels in first 3 hours on 1-inch choke, flowing pressure on tubing being 150 pounds and on casing, 750 pounds. Before re-perforating the well was averaging about 6½ barrels per hour.

**Shreveport.**—Sixteen drilling permits were issued last week by the Louisiana Conservation Commission, of which 6 were in North Louisiana divided among the following parishes: Caddo, 4; LaSalle, 1, and Webster, 1. The 10 in South Louisiana were in the following parishes: Cameron, 1; Evangeline, 1; Lafourche, 1; Plaquemines, 1; Rapides, 1; St. Mary, 4, and Vermilion, 1.

# Arkansas Fields

## *LaFayette County wildcat believed to have cut fault*

**El Dorado, Ark.**—Erwin, Leach and East Texas Refining Company's G. E. Patten 1, C NW NE 24-16-24, LaFayette County wildcat, last week drilled anhydrite at 3312 feet after topping first anhydrite at 3225 feet and is believed to have cut a fault between present location and Shell Oil Company and Ohio Oil Company's Warren Estate 1, C SE SE 13-16-24. The Glen Rose section failed to appear in the latter test. Present location is on a "farm-out" of several hundred acres from Shell Oil Company and Ohio Oil Company and seeks to test producing possibilities of the Glen Rose.

Lion Oil Refining Company made its entry into the Magnolia (Kerr-Lynn) field, Columbia County, last week with announcement of two locations there.

### Arkansas Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **La Fayette County (Buckner)—** | | |
| Standard, J. P. McKean 5, 7-16-22 | 372 | 7254 |
| **Union County (Schuler)—** | | |
| Lion, Murphy Land Co. 1, 13-18-18 | 600 | 7702 |

* Failures; † Junked; ¶ Million cu. ft. gas.

## *Moving in for test in Mississippi*

**Jackson, Miss.**—Union Producing Company's J. R. Anderson 1, located 3960 feet west NEc 12-8n-1w, Madison County, Mississippi, near Flora, that recently showed some dead oil at 4437 feet, last week cored limy sand at 4950 feet, and continued to be the cause of considerable leasing in the vicinity. Among those securing acreage was Southern Natural Gas Company of Birmingham, Alabama, discoverer of the salt dome in Hinds County near Edwards, Mississippi, who leased 160 acres in Section 3-8n-1w, and in Section 34-9n-1w.

Ryan and Anderson have derrick up and are moving in rig for a wildcat in Lowndes County, northeast Mississippi, S. W. Hope 1, located 200 feet south of C NE NW 3-19s-18w.

Peninsular Oil & Refining Company's Florida wildcat, 41 miles west of Miami, Cory 1, C NW 6-55s-34e, is drilling anhydrite below 4578 feet. Donald Clark and associates' Adams McCaskill 1, Lot 332, Fourth Land District, Pierce County, Georgia, has drill stem stuck, total depth being 1000 feet.

# New Mexico Fields

## *Decided falling off in new work in Lea County*

**Hobbs, New Mexico.**—Lea County failed to maintain its recently expanded development program the past week when new locations declined to 6. A total of 25 new authorizations were made during the previous two weeks period. The Vacuum field, which is usually the largest contributor, was omitted from the latest new location report.

Required offsets and lease expirations have forced Vacuum operators to carry on more development than desired in view of the fact production is lagging. This area was short 78,591 barrels in

### New Mexico Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Eddy County (Wildcat)—** | | |
| Barnett Dev. Corp., King 1, c nw se 23-26s-30e | * | 4051 |
| **Lea County (West Eunice)—** | | |
| Wilson et al, State 3, nw se ne 7-21s-35e | * | 3883 |
| **Lea County (Hardy)—** | | |
| Stanolind, Hill 4-A, lot 15, 6-21s-37e | 240 | 3770 |
| **Lea County (Langlie)—** | | |
| Richmond Drl. Co., State-Texas Co. 2-A, c sw sw 2-25s-37e | 480 | 3414 |
| **Lea County (Vacuum)—** | | |
| Phillips, State-Santa Fe 28, c ne sw 33-17s-35e | 800 | 4633 |
| Shell, State 1-C, c ne se 24-17s-34e | 97 | 4733 |

* Failures; † Junked; ¶ Million cu. ft. gas.


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producing its proportion allowable in February and 23,484 barrels total in January. The shortage is due primarily to the absence of an adequate market and transportation outlet, while a nominal number of wells are not producing their quota. Bottom-hole water is necessitating early plug-back operations.

Fields in eastern Lea County were allotted all of the new operations the past week. In the Penrose field, Skelly Oil Company has rigged up for A. B. Baker 2-A, SW SW NW 26-22s-37e, and J. V. Baker 8, SW NE NE 27-22s-37e. The Texas Company farmed out a state lease near the west edge of the Mattix field to Anderson-Prichard Oil Corporation and the latter has cemented surface pipe at 408 feet for State 1-A-32, C SW NW 32-24s-37e. Phillips Petroleum Company and Pure Oil Company's Woolworth 7, C SW NE 33-24s-37e, is a new operation. Stanolind Oil & Gas Company's Gregory 1-B, C SW NW 15-26s-37e, is to offset a wet gasser in the Rhodes pool.

A major extension for the Loco Hills pool was recorded the past week when Allen-Fair & Pope's Snowden-McSweeney 1, SE NE SE 36-17s-29e, flowed natural at rate of 100 barrels daily. It is seven eighths of a mile northwest of Martin Yates et al's Federal Permit 1, which opened the pool last February, flowing 420 barrels oil in 18 hours after a shot at 2874 feet. The above partnership is to shoot the outpost, and rig will be skidded to drill Snowden-McSweeney-State 2, SE SW SW 36-17s-29e, with a third test scheduled.

# Rocky Mountain States

***Plan 24 wells during next three months in Lance Creek. Contracts for crude justify enlarged drilling program.***

**Casper, Wyo.**—An advance in drilling activity for the Lance Creek field area in eastern Wyoming is seen with announcement by operators in that area of plans to drill 24 additional wells within the next three months to care for an expanding market demand for both Sundance and Minnelusa oil.

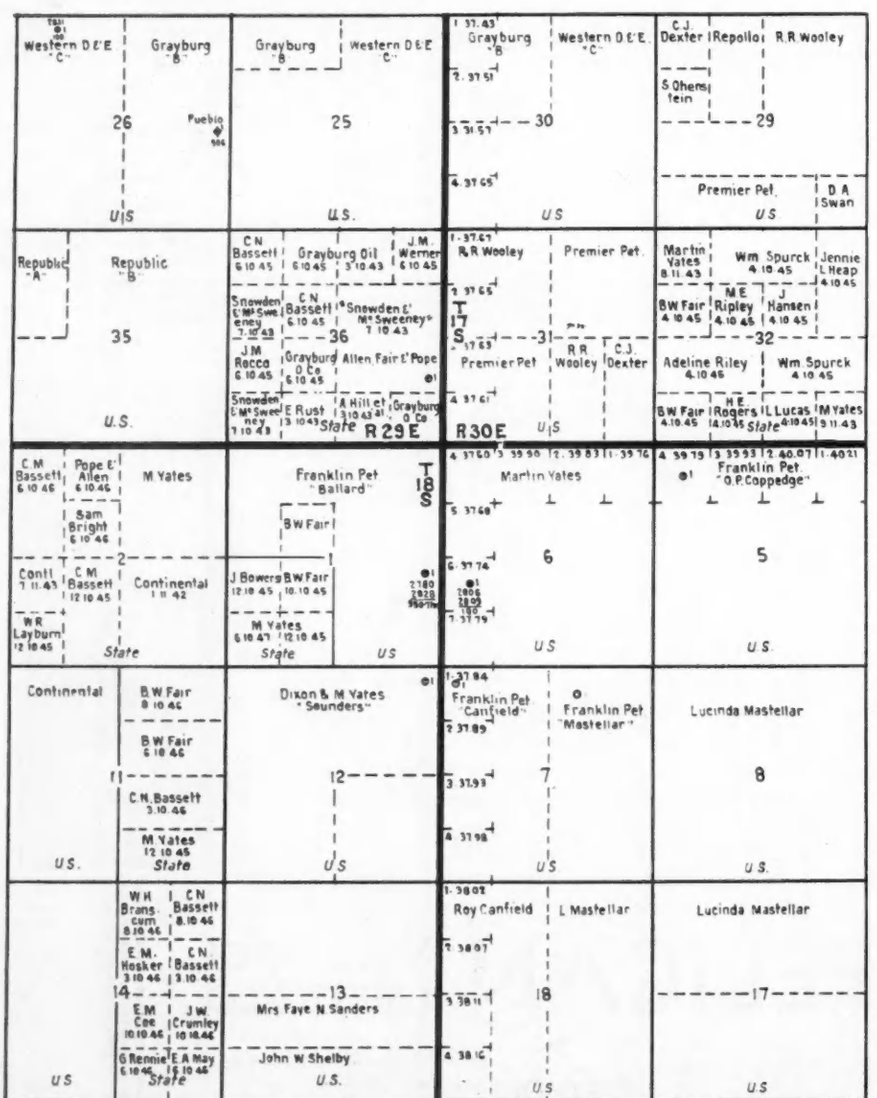
Negotiations are underway for sale of approximately 6000 barrels daily of additional oil from the Lance Creek field through deals with Standard Oil Company of Indiana and The California Company. Standard Oil Company of Indiana is taking 4000 barrels of Sundance crude daily under a 5000-barrel per day contract, for shipment through the company's line to the Chicago refining district. Under the deal now pending, the company would take an equal amount of the Leo sand crude for marketing in the Mid-Continent area. The deal would be made with operators of the unit agreement in the field, Ohio Oil Company, Continental Oil Company and Argo Oil Corporation.

Tentative plans for completion of a 1000-barrel-per-day marketing deal between The California Company and the Ohio Oil Company call for crude to be shipped to the Bay Petroleum Company refinery at Denver, Colorado, via the Rocky Mountain Pipe Line Company carrier from the field, for processing under the terms of the proposed deal. Ohio Oil Company is also shipping 600 barrels daily of the Leo oil to Wasatch Refining Company at Woods Cross, Utah. This arrangement was recently completed, the Lance Creek crude supplanting oil formerly purchased from Texas for operation of the plant. Wasatch Refining Company is also supplying its Pocatello, Idaho, plant with Lance Creek crude.

### Sundance and Minnelusa

Development work in the field during the ensuing 3 months will include wells to the Sundance and the Minnelusa horizons, both formations to be developed to handle the increase in output which will result in the field taking first place in production for Wyoming. Heretofore top rank in crude production has been held by Salt Creek. Available water supply will determine the speed of development work in the field.

Recent extensions of the Sundance pool at Lance Creek have resulted in the expansion of the participating area for the unit agreement to include 1,714.9 acres as compared with a former total of 1,600.3 acres. A participating area has also been determined for the Leo sand, which area will embrace 2,332.4 acres. The Ohio Oil Company holds a 43.6 percent interest in the Sundance unit while Continental Oil Company controls 38.5 percent and the Argo Oil Corporation 17.9 percent. Development work is divided and expenses shared on this basis; which is also the




Map by Zingery Oil Map Company, Fort Worth

**The Loco Hills pool, discovered early this year by Martin Yates et al's Federal permit 1, C NW SW 6-18s-30e, promises to become the next active drilling center in Eddy County. Four tests are underway within a mile radius of the two-well area.**

base for distribution of sales and profits. Interests in the Leo participating area are divided in approximately the same ratios; with Ohio Oil Company controlling 42.4 percent, Continental Oil Company 38.4 percent and Argo Oil Corporation 19.2 percent. Producers with production outside the unit areas have been running approximately 1000 barrels daily to storage during February and March, while unit operators have run a like amount from offset wells. This stored crude has been purchased by Continental Oil Company.

Recently announced plans for the remodeling and increasing the capacity of Continental Oil Company's gasoline absorption plant in the Lance Creek field is also in line with the pick up in activity for the area. The plant handles gas from the Leo and Sundance horizons, and has recently started taking gas from the Dakota sands. The gas has a considerable gasoline content. New equipment is being added to the plant to increase its efficiency in removing the gasoline from the low pressure gas, after which the gas is returned to the Sundance formation via the unit pressure maintenance plant for that horizon.

Several wells in the Lance Creek field are nearing critical depths this week. The Ohio Oil Company's Agnes Rohlff 3, NE NE 32-36n-65w, topped the Leo sand of the Minnelusa formation at 5152 feet and has run 4¾-inch casing to 5150 feet where it is waiting on cement to set before drilling in to test. Hole bottoms in the Leo sand at 5238 feet.

On the northern side of the field, Continental Oil Company's Emil Rohlff 2, NW SE NW 32-36n-65w, logged the Basal Sundance sand at 4140-85 feet with no oil or gas shows reported, and is drilling at 4204 feet in the Chugwater red beds, headed for the Minnelusa horizons. This test is outside to the northwest of the proved area of the field. The company is moving in materials for Schuricht 8-B, NW SW NW SE 6-35n-65w, within the proved area. This is the first of the new wells started under the new development campaign.

General Petroleum Corporation started deepening operations this week in the Government 1, NW NW SE 21-35n-77w, discovery well for the Cole Creek field, Natrona County, central Wyoming. The former producing horizon in the Lakota at 7974-8013 feet has been cemented off and is drilling ahead below 8020 feet, old total depth, for a test of the Sundance sands expected within the next 250 feet of hole.

A break in the winter weather enabled work to resume on Wyshawn Oil Company's Lindley 2, NE SW SW 35-32n-65w, deep test on the south side of the fault block in the Shawnee field, Converse County, east central Wyoming. Shut down for the winter at 2370 feet, it now is drilling below 2525 feet, headed for a test of the Tensleep sands. The company's Lindley 1, CNL SE SE 34-32n-69w, also on the southern edge of the Shawnee field, is plugging back from 2865 feet to around 1053 feet to test gas shows encountered in the Sundance sand.

Deepening has been started on Continental Oil Company's Delahoyde 1, C NE NE 23-37n-63w, deep test in the Ant Hills field, Niobrara County, Wyoming. This well discovered the field in 1928. It is drilling below 4680 feet for a test of the Sundance and Minnelusa formations. Hole formerly bottomed at 3949 feet in the Dakota where it was completed for 250 barrels daily and shut in.

## Mountain States Completions

### MONTANA

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Glacier County (Cut Bank Field)—** | | |
| Glacier Prod. Co., Bliesner Unit 1, ne se ne 3-33n-5w | ¶14 | 2642 |
| Santa Rita O&G Co., Tribal 9, ne se ne 16-35n-62 | 65 | 2985 |
| **Toole County (Kevin-Sunburst Field)—** | | |
| Coolidge & Coolidge, State 3-A, nw ne nw 36-36n-2w | 30 | 1605 |

### WYOMING

| | | |
|---|---|---|
| **Sweetwater County (Lost Soldier Field)—** | | |
| Sinclair-Wyoming, Lost Soldier 82, ne sw sw 11-26n-90w | 100 | 2217 |

• Failures; † Junked; ¶ Million cu. ft. gas.

## *Humble building pump station in Henderson county*

Humble Oil & Refining Company will erect a new pump station on the H. H. Dailey Estate lease in the Navarro Crossing field, Henderson County. Included in the construction program is a 55,000-barrel storage tank. The plant will replace temporary pumping equipment used to move oil produced at Navarro Crossing to a trunk line in Leon County.

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**MORRIE KIRSCHNER,** Tulsa attorney, has opened an office in Evansville where he is specializing in petroleum practice in the southern Illinois basin.

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# Michigan Fields

***Drilling boom gets early start in shallow producing area. Gobles area extension expected to start much new work.***

**Mt. Pleasant, Mich.** — Twenty-three permits to drill issued for the week in Michigan reflected the forecast drilling boom by early summer for the shallow lime play in southwestern Michigan, with 19 of the permits going to counties in the southwest tier of the state. Industry leaders look for Allegan, Van Buren, Kent, Barry, Cass and Kalamazoo Counties to get the concentration of summer exploration. The Traverse, only zone being produced in southwestern Michigan, ranges from 2000 feet to 900 feet.

Difference in costs between the shallow play and drilling in the basin is certain to influence the shallow field. Wildcats are being drilled on a dry-hole basis of between $2200 and $4000, with a commercial well equipped to produce around $5500 to $7000. Cost in the basin runs from $10,000 to $24,000.

At the present time eight different districts are being heavily played in Allegan, Van Buren and Kent Counties. Only two districts in the basin, Temple field in Clare County and Wise pool in Isabella County, are active.

Developments this week are expected to influence starting of from 20 to 50 new tests in Van Buren County. W. H. Thourlby's Smith 1, NW SW NE 24-1s-14w, Bloomingdale Township, in the new Gobles area, three locations south of the discovery, started to flow from 1359 feet before the producing casing string had been set. Operators estimated about 25 percent of the oil was going into pits but gauged the well in tanks at the same time for 650 barrels in 36 hours. This well is expected to throw development to the south and across the township line into Pine Grove, where six locations were staked early this week.

A half mile west extension of the Clapsaddle pool, Columbia Township (1s-15w), Van Buren County, was indicated when J. B. Reed's Cooley 1, SE SE SE 14-1s-14w, started flowing at the rate of 240 barrels per day natural from 1199 feet before casing had been set on the lime.

Regarded as highly important for an east extension of the old Burnips pool, Salem Township, Allegan County, discovered in 1937, and the forerunner to the 1938-39 oil boom in southwestern Michigan, were two completions this week which not only rated high initials but also showed structure position 11 feet higher than wells in the producing contour of the older developed area which covers about 1000 acres.

Michigan Devonian Oil Company's Green 1, SW SW SE 15-4n-13w, initialed 790 barrels on a 19-hour test after acid, at 1584 feet, 48 feet in Traverse lime. This is the farthest east drilled in the field and no condemning wells have been abandoned in an area covering two sections to the east.

Seven wildcat tests were abandoned during the week in 31 completions which included 18 oil wells, two gas wells and 11 failures. Sprenger Brothers junked Bihlmire 1, Section 35-3s-7w, Berrien County, after an attempt to produce a Trenton lime show at 2368 feet. Shot with 60 quarts the test failed to show enough free oil to pump.

Two wildcats in the basin were junked as failures in the Dundee. Socony Vacuum Oil Company's Snyder 1, Section 23-13n-5w, Isabella County, on the Winn structure, southeast of the Sherman oil-gas pool, drilled black water and abandoned at 3593 feet.

E. A. Bovell's Schliter 1, Section 23-19n-1w, northwest of the Buckeye field, Gladwin County, abandoned at 3723 feet, 108 feet in the Dundee lime.

### Michigan Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Allegan County—** | | |
| Fortney Oil Co., Connor 1, nw nw nw 8-3n-12w | * | 1637 |
| Bell-Marks, Hendrixson 1, sw sw se 14-3n-12w | * | 1722 |
| Gordon Oil Co., Baird 1, se ne se 15-3n-12w | * | 1735 |
| Bell-Marks, Parmalee 1, se ne ne 22-3n-12w | 60 | 1650 |
| Gordon & Hilliard, Bender 1, ne nw 27-2n-11w | * | 1673 |
| Socony-Vacuum, Norgaard 2, se sw sw 2-4n-13w | 115 | 1588 |
| Weber 2, se ne nw 11-4n-13w | 310 | 1580 |
| Bredewig-Smith 1, sw se sw 15-4n-13w | 145 | 1615 |
| Chapman Oil Co., Weber 1, nw sw ne 11-4n-13w | 415 | 1589 |
| Mich. Devonian, Green 1, sw sw se 15-4n-13w | 790 | 1584 |
| Lentz-Miller, Newell 4, nw ne sw 16-4n-13w | 35 | 1619 |
| Mesel & Spielbergs, Hardy 1, se ne sw 21-4n-13w | 210 | 1560 |
| **Arenac County—** | | |
| W. E. Ross, McKay 1, c sw se 10-20n-4e | ¶16 | 1205 |
| **Barry County—** | | |
| Redman Oil Co., Slynn 1, ne ne sw 23-4n-9w | * | 2129 |
| **Berrien County—** | | |
| Sprenger Bros., Bihlmire 1, se sw sw 35-3s-17w | * | 2860 |
| **Clare County—** | | |
| C. W. Teater, Van Horn 6, se nw ne 3-18n-6w | 700 | 3901 |
| C. L. Maguire, Coyne 2, se nw ne 4-18n-6w | 2200 | 3864 |
| **Gladwin County—** | | |
| E. A. Bovell, Schliter 1, se se nw 28-19n-1w | * | 3723 |
| **Isabella County—** | | |
| Socony Vacuum, Snyder 1, c se nw 23-13n-5w | * | 3593 |
| Gulf, Russell 1, nw ne ne 20-16n-3w | 110 | 3709 |
| Cities Service, Dennis 1, se nw nw 28-16n-3w | 45 | 3698 |
| **Montcalm County—** | | |
| L. T. Barber, Burt 1, se nw sw 22-12n-6w | ¶6½ | 1315 |
| **Ottawa County—** | | |
| R. C. Lentz, Van Frank 1, nw ne ne 9-7n-13w | * | 2115 |
| **Tuscola County—** | | |
| Munger & Brehms, McPherson 1, ne sw ne 25-14n-7e | 40 | 2850 |
| **Van Buren County—** | | |
| Red-Man Oil Co., Sheldon 1, se sw se 20-2s-16w | 55 | 1010 |
| Fisher & McCall, Chila 1, se ne sw 7-1s-14w | 40 | 1236 |
| H. Brown Cannon, Brown 1, ne ne nw 24-1s-14w | 210 | 1378 |
| W. H. Thourlb, Smith 1, nw sw ne 24-1s-14w | 900 | 1359 |
| Burr Oil Co., Wooster 1, nw sw se 24-1s-14w | * | 1360 |
| A. I. McColl, Cedergreen 1, nw sw 14-1s-15w | * | 1185 |
| J. B. Reed, Colley 1, se se se 14-1s-15w | 150 | 1199 |

* Failures; † Junked; ¶ Million cu. ft. gas.

# California Fields

***Second producer completed in Arvin area, Kern County. Buttonwillow wildcat finds favorable production signs.***

**Los Angeles.**—Superior Oil Company brought in Jewett 1, the second producer for the Arvin field, south of the Mountain View oil field in Kern County. This field was discovered last month by Standard Oil Company, Superior Oil Company and The Texas Company, and since then each of the three companies have started additional tests to determine the extent of the structure. Jewett 1, on a drill-stem test, flowed at the rate of between 500 and 1000 barrels per day through a restricted opening and it is believed capable of yielding considerably more, but due to curtailment regulations Jewett 1 will be choked in at once.

In the Aliso Canyon field, in the San Fernando Valley, Tide Water Associated Oil Company has completed Porter 2, Section 27-3-16, the second new producer for this field which was discovered 60 days ago. It came in flowing 600 barrels of 25.2 gravity oil per day through a ½-inch choke from 5200 feet. The well is thought capable of yielding around 1000 to 1200 barrels daily but will be choked. Very little gas is in evidence. Union Oil Company's S. S. Orcutt 1-27 below 4600 feet is coring ahead with the expectation of picking up the same productive zone found in Porter 2, while the Standard Oil Company's Ward 1, Section 27-3-16, with bottom at 4998 feet ran a formation tester on the zone from 4910 to 4998 feet and while open for 45 minutes developed a fair gas blow. It now is coring ahead and is slated for completion within a week.

### Buena Vista Lake

Along the southwest edge of the Buena Vista Lake, and within a half mile of the shallow production already developed at Buena Vista, will be drilled a deep test at once by General Petroleum Corporation. Instead of halting in the upper sand where substantial production has been obtained for years, the company intends to continue to the horizon from 7000 to 9000 feet in the

## California Completions

| Company, Well and Location | Init. Prod. Bbls. | Depth |
|---|---|---|
| **Los Angeles County (Athens-Rosecrans)—** | | |
| Metcalfe Oil Co., Rosecrans 1 | 440 | 7707 |
| Union, Rosecrans 31 | 125 | 7718 |
| **Los Angeles County (Montebello)—** | | |
| Kern-St. Helens Properties, Mulholland 4 | 1694 | 7175 |
| Standard, Harvey 2 | 1032 | 7200 |
| **Los Angeles County (Torrance)—** | | |
| Hydrocarbon Products, Inc., Torrance 1 | 150 | 5165 |
| Peters Royalty Corp., Bass 1 | 200 | 5169 |
| Sunset Oil Co., La Salle 1 | 150 | 5202 |
| Symbol Oil Co., No. 1 | 285 | 5165 |
| Whittier-Santa Fe Springs Oil Synd. No. 1, Mertz 1 | 160 | 5167 |
| **Los Angeles County (Torrance Extension)—** | | |
| D & B Oil Co., No. 4 | 250 | 5187 |
| General, Poggi 14 | 240 | 5160 |
| **Los Angeles County (Wilmington)—** | | |
| Union Pacific, U. P. (LB) 108 | 707 | 4058 |
| U.P. (LB) E-14 | 110 | 3125 |
| **Kern County (Trico)—** | | |
| Trico Oil & Gas Co., T & G 1, ne c se¼ 2-25-23 | ¶25 | 2440 |
| **Kern County (Kern River)—** | | |
| D.B.K. Co., No. 2, sw c w½ nw¼ 34-28-28 | 10 | 440 |
| Triad Oil Co., A.H.S. 1, w¼ c 19-28-28 | 20 | 1195 |
| **Kern County (Rio Bravo)—** | | |
| General, Caldwell 1, s¼ c 35-28-25 | 1968 | 11550 |
| **Kern County (Mt. Poso)—** | | |
| Shell, Glide 1, s¼ c 29-27-28 | * | 2508 |
| **Fresno County—** | | |
| **(East Coalinga Eocene Pool)** | | |
| Standard, No. 71-13C, ne c 13-20-15 | 4000 | 6961 |
| Superior, Coalinga Fee 3, ne c 7-20-16 | 310 | 7993 |
| Coalinga Fee 4, ne c 7-20-16 | 2700 | 8000 |
| **Kings County (Kettleman North Dome)—** | | |
| K.N.D.A., No. 36-18Q, w c 18-22-18 no est | | 7739 |
| **Ventura County (Rincon)—** | | |
| C.C.M.O. Co., No. B-25, ne c 17-3-24 | 689 | 4658 |
| **Santa Barbara County—** | | |
| **(Santa Maria Valley)—** | | |
| Gerard & Thompson, Berneiser 1, w¼ c nw¼ 27-10-34 | 3385 | 4970 |

* Failures; † Junked; ¶ Million cu. ft. gas.

belief that the Stevens sand underlies this area. The well, described as the BVA 1, will go down in Section 1-32-24, just outside a Naval reserve.

Another interesting deep test announced by General Petroleum Corporation is More Ranch 4, that will go down a short distance west of the More Ranch where gas had previously been developed. Road is under construction to site of this new project. This test will be drilled in Section 15-4-28, Santa Barbara County.

### Buttonwillow Wildcat

With oil sand streaks showing a pronounced tendency to thicken, more hopeful signs are seen in the Dougherty-Salisbury 1 wildcat being drilled in Section 7-29-24, in the Buttonwillow district by California Exploration Company. This project resumed coring early last week with bottom below 12,500 feet in hard sand. Something over 15 feet of oil sand was cored in the last 20 feet of formation. The test is six miles north of the Buttonwillow Ridge gas field which has yet to witness a thoroughly deep try for commercial production.

Richfield Oil Corporation's Western A-52-32, NEc 32-30-25, Elk Hills, was brought in last week for an initial yield of 1980 barrels of 48-4 gravity oil from 8793 feet. During a water shut-off test it flowed at the rate of 7,000,000 cubic feet of gas per day.

Standard Oil Company apparently is about to complete another well in the Wasco field, Kern County, as Mushrush 2, Section 7-27-24, has bottomed at 13,124 feet and 7-inch casing cemented at 13,060 feet. It has been cleaned out to bottom preparatory to a production test. The company's KCL 8-B-2, Section 17-24-24, is drilling in shale below 12,400 feet.

## *Oil tax bill again tops $1,250,000,000*

Better than one of every 10 tax dollars collected in the United States in 1938 were levied on petroleum and its products and paid largely by consumers. Preliminary estimates released by Earl M. Hearne, Secretary of the Alabama Petroleum Industries Committee, place the cost of petroleum taxation last year at $1,277,680,972, or slightly more than 10 percent of the estimated $12,200,000,000 in taxes collected from all sources.

The 1938 petroleum tax bill exceeded a billion and a quarter dollars for the second consecutive year. The 1938 collections increase to $11,808,484,000 the total of petroleum taxes received by federal, state and local governments since 1921.

Preliminary estimates indicate that petroleum earnings in 1938 were equivalent about to one-quarter of the tax bill. In no recent year has the industry earned as much as it and its customers have paid the tax collector, Hearne reports. Based on preliminary estimates placing the 1938 domestic production of crude oil at 1,213,254,000 barrels, tax collections approximated $1.05 per barrel, or roughly equal to the market value. Thus the taxes had the effect of doubling the cost of oil to the consumer.


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# WILDCAT REPORT
## New Starts and Completions

| STATE | WILDCATS STARTED | | WILDCAT TESTS COMPLETED | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total | | Oil | | Gas | | Dry | |
| | This Week | This Year | This Week | This Year | This Week | This Year | This Week | This Year | This Week | This Year |
| Alabama | ... | 1 | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Arkansas | ... | 9 | ... | 6 | ... | ... | ... | ... | ... | 6 |
| California | 5 | 77 | ... | 36 | ... | 8 | ... | ... | ... | 28 |
| Colorado | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Georgia | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... |
| Illinois | 3 | 110 | 6 | 71 | 1 | 6 | ... | ... | 5 | 65 |
| Indiana | 2 | 8 | 2 | 3 | ... | ... | ... | ... | 2 | 3 |
| Kansas | 2 | 51 | 5 | 49 | ... | 15 | 1 | 1 | 4 | 33 |
| Kentucky | ... | 5 | 2 | 6 | 1 | 4 | ... | ... | 1 | 2 |
| Louisiana | 1 | 40 | ... | 24 | ... | 5 | ... | ... | ... | 19 |
| North Louisiana | 1 | 14 | ... | 8 | ... | 2 | ... | ... | ... | 6 |
| South Louisiana | ... | 26 | ... | 16 | ... | 3 | ... | ... | ... | 13 |
| Michigan | 5 | 56 | 8 | 87 | ... | 7 | ... | ... | 8 | 80 |
| Mississippi | 1 | 3 | ... | ... | ... | ... | ... | ... | ... | ... |
| Missouri | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... |
| Montana | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... |
| New Mexico | 1 | 11 | 1 | ... | ... | ... | ... | ... | 1 | ... |
| New York | ... | ... | ... | 2 | ... | ... | ... | 1 | ... | 1 |
| Oklahoma | 5 | 54 | 4 | 48 | ... | 7 | ... | 2 | 4 | 39 |
| Ohio | ... | 2 | 1 | 6 | ... | 1 | ... | ... | 1 | 5 |
| Pennsylvania | ... | ... | 1 | 2 | ... | ... | ... | ... | 1 | 2 |
| South Dakota | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... |
| Texas | 20 | 271 | 29 | 295 | 1 | 29 | ... | 2 | 28 | 264 |
| East Texas | 2 | 38 | 3 | 24 | ... | ... | ... | ... | 3 | 24 |
| North Texas | 3 | 33 | 5 | 69 | ... | 15 | ... | 1 | 5 | 53 |
| Gulf Coast | 5 | 33 | 4 | 25 | ... | 2 | ... | ... | 4 | 23 |
| Panhandle | ... | 2 | 2 | 3 | ... | ... | ... | ... | 2 | 3 |
| South Texas | 7 | 104 | 12 | 125 | 1 | 8 | ... | ... | 11 | 117 |
| West Texas | 3 | 61 | 3 | 49 | ... | 4 | ... | 1 | 3 | 44 |
| West Virginia | ... | ... | 1 | ... | ... | ... | 1 | ... | ... | ... |
| Wyoming | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total U. S. | 46 | 708 | 60 | 638 | 3 | 85 | 2 | 7 | 55 | 546 |

## CALIFORNIA

### FIRST REPORTS

**Kern County**—Richfield's Western A-12-33, 990 ft s 330 ft e nwc 33-30-25, piles.

**Fresno County**—Gatos Creek Oil Co.'s No. 1, approximately c 19-19-13, rig.

**Ventura County**—J. A. English's Lankershim 2, 100 ft n 140 ft w sec nw¼ nw ¼ 13-4-19, lcn.

**Santa Barbara County**—General's Moore 4, 1662 ft n 8553 ft e sw lease corner, in 15-10-35, lcn. Fred Cole's Ferrini 1, in lot 13 of Guadalupe Ranch sec 15-10-35, lcn. Glenray Oil Co.'s Glenray 1, c w½ ne ¼ sw¼ 1-4-26, portable rig, will drill 3 core holes.

## ILLINOIS

### FIRST REPORTS

**Gallatin County**—J. D. Ethridge et al's Frohock, se se 4-10-8e, sp.

**Richland County**—Kingwood Oil Co.'s Eli Provines 1, se se sw 3-2n-14w, Bonpas tnp, 12 mi from production, moving in materials.

**Wayne County**—Weinert, Inc.'s C. Duke 1, n½ ne ne 28-2s-6e, Orel tnp, 3 mi south of Sims, loc.

### COMPLETIONS

**Bond County**—Joe Kesl, Jr. et al's A. Meyer 1, nw ne nw 13-4n-2w, Tamalco tnp, top Ste. Genevieve 1394 ft, abnd 1520 ft.

**Clay County**—Richard Duncan's J. H. Liggett 1, se nw se 17-5n-5e, Larkinsburg tnp, started at 41 barrels on hour on pump from Aux Vases, td 2380 ft.

**Coles County** — Texas-Canadian Oil Co., Ltd.'s Mrs. Mae Miller 1, se se 3-12n-8e, Lafayette tnp, 3 mi east of Mattoon, top McClosky 2185 ft, abnd.

**Lawrence County**—Ullom & Purnell's A. B. Jordon 1, ne nw nw 8-2n-11w, Dennison tnp, abnd 655 ft.

**Marion County**—John Q. Gill's J. A. Broom 1, c sw sw sw 5-3n-3e, Alma tnp, abnd 2480 ft.

**Wayne County**—Edward H. Held and Kingwood Oil Co.'s Gibbs 1, nw nw sw 11-1n-9e, southeast of Clay City and 5 mi southeast of Riggs Pool, abnd below McClosky at 3400 ft.

## INDIANA

### FIRST REPORTS

**Posey County** — Walter Meyers and Otto Graham's W. Seifert 1, c nw se 19-6s-12w, Marrs tnp, loc.


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**Spencer County**—Trio Oil Co.'s F. Swallow 1, sw sw se 32-6s-8w, Luce tnp, moving in materials.

### COMPLETIONS

**Spencer County** — Sycamore Oil Co. (Le Moine and Taylor et al's), Prudential Life Insurance Co. 1, ne sw nw 7-7s-7w, Luce tnp, abnd 1783 ft.

**Vanderburg County**—Arab Petroleum Co.'s (Bob Garland et al's), J. Tieken 1, c se se 17-5s-11w, German tnp, 3 mi southwest of St. Wendel, abnd 2735 ft.

## KANSAS

### FIRST REPORTS

**Norton County**—Power Oil Co. et al's Van Patten 1, nec 23-4s-21w, lcn.

**Sedgwick County**—Carlock et al's Evans 1, swc se 6-25s-2e, dr.

### COMPLETIONS

**Ellis County**—Twin Drlg. Co.'s Polcyn 2, c w½ e½ se 12-13-16w, s Wenholz pool, abnd rig.

**Barber County**—Barbara Oil Co.'s Wilson 1, c se 17-33-13w, 1½ mi w Medicine Lodge pool, top Kansas City 4097 ft, top Oswego 4503 ft, top Viola 4950 ft, top Simpson 5074 ft, top Arbuckle lime 5192 ft, td 5201 ft, 7-inch 5160 ft, 3.87 million cubic feet gas, completed.

**Cowley County**—Lloyd et al's Jones 1, c el w½ e½ 2-31-3e, 1 mi n Smith pool, base Mississippi 3232 ft, top Arbuckle lime 3348 ft, td 3357 ft, abnd.

**Rice County**—Rennie et al's Williams 1, c s½ se sw 27-21-9w, s Thurber gas pool, top Misner sand 3438 ft, base Misner 3462 ft, td 3469 ft, shot 10 qts, bailed 1½ bbls 24 hours, abnd.

**Russell County** — Central Petroleum Co.'s Karst 1, se ne sw 21-15-13w, top Anhydrite 860 ft, top Topeka 2800 ft, top Lansing 3102 ft, top Conglomerate 3365 ft, top Arbuckle 3384 ft, hfw 3400-05 ft, td 3405 ft, n Eichman pool, abnd.

## KENTUCKY

### COMPLETIONS

**Henderson County**—Springrose Drilling Co.'s Pillman 1, 1¼ mi northwest of Reed, started swabbing 35 barrels an hr, rated 500-barrel well, top McClosky 1966 ft, td 1972 ft.

**Union County**—Albert Brauer and C. H. Daniel's W. H. Pollard 1, 3 mi west of Uniontown, drilled below McClosky, abnd 3022 ft.

## NORTH LOUISIANA

### FIRST REPORTS

**Bienville Parish** — Union Producing Co.'s Bienville School Board 1, ne ne 16-16n-10w, moving in materials.

## MICHIGAN

### FIRST REPORTS

**Allegan County**—C. W. Teater's Martindale 1, sw sw nw 29-1n-12w, rig.

**Barry County**—Thornapple Valley Dev.'s Moxon 1, se nw se 2-4n-10w, lcn.

**Cass County**—Anna Prather's Jones 1, sw se ne 13-5s-13w, dr.

**Ionia County**—J. E. Drury's Keefer 1, sw se 5-6n-5w, dr.

**Midland County**—Sun Oil Co.'s Schofield 1, nw nw 9-15n-1e, rig.

### COMPLETIONS

**Allegan County**—Fortney Oil Co.'s Connor 1, nw nw nw 8-3n-12w, Traverse 1628 ft, td 1637 ft, hfw, abnd. Gordon & Hilliard's Bender 1, ne nw 27-2n-11w, Traverse 1665 ft, td 1673 ft, hfw, abnd.

**Barry County**—Redman Oil Co.'s Slynn 1, ne ne sw 23-4n-9w, abnd in Traverse 2129 ft.

**Berrien County**—Sprenger Brothers' Bihlmire 1, se sw sw 35-3s-17w, Trenton 2235 ft so 2368 ft, hfw 2860 ft, pb to 2372 ft, shot with 60 qts, abnd.

**Gladwin County**—E. A. Bovell's Schlichter 1, se se nw 23-19n-1w, Dundee 3615 ft, td 3723 ft, 2200 ft black water, abnd.

**Isabella County**—Socony Vacuum's Snyder 1, se nw 23-13n-5w, Dundee 3554 ft, td 3593 ft, 3000 ft black water, abnd.

**Ottawa County**—Lentz, Inc.'s Van Frank 1, nw ne ne 9-7n-13w, abnd in Traverse, 2115 ft.

**Van Buren County**—A. I. McColl's Cedergreen 1, nw sw 14-1s-15w, Traverse 1179 ft, abnd 1185 ft.

## MISSISSIPPI

### FIRST REPORTS

**Lowndes County**—Ryan & Anderson's S. W. Hope 1, 200 ft s of c ne nw 3-19s-18w, moving in rig.

## NEW MEXICO

### FIRST REPORTS

**Eddy County**—Etz & Cone's Nelson 1, se se ne 10-18s-30e, machine.

### COMPLETION

**Eddy County** — Barnett Oil Developments, Inc.'s King 1, c nw se 23-26s-30e, elev 3091 ft, base salt 3420 ft, top Delaware lime 3615 ft, top sand 3655 ft, first sul w 3768 ft, abnd 4051 ft.

## OHIO

### COMPLETIONS

**Brown County**—J. P. Kappas et al's George Moore 1, Perry tnp, 1½ mi south of Fayetteville, top Trenton 843 ft, water at 1380 ft, abnd 1443 ft.

## OKLAHOMA

### FIRST REPORTS

**Grant County**—Carter Oil Co.'s Staggers 1, c w½ se nw 4-25n-3w, rur.

**Harper County**—Sinclair-Prairie Oil Co.'s George 1, swc 5-27n-23w, rig.

**Kiowa County**—Russell Tarr's Kelsay 1, swc nw 20-7n-17w, lcn.

**Pottawatomie County**—Dickinson's LaReam 1, nec sw 33-6n-3e, rog.

**Seminole County**—Buell's Madgett 1, se sw se 15-10n-5e, lcn.

### COMPLETIONS

**Garvin County**—Pure Oil Co.'s Derdeyn 1, c ne nw se 19-3n-1e, 5 mi nw Wynnewood, top Pawhuska 2330 ft, top Bell City 3035 ft, top Checkerboard 3490 ft, top Simpson dense 3729 ft, td 4088 ft, abnd.

**Murry County**—Saunders et al's Vanderslice 1, c sw sw 25-2n-2e, 6 mi nw Sulphur, top Arbuckle lime 3001 ft, td 3005 ft, abnd.

**Seminole County**—Grimes et al's Dye 1, nwc se 2-5n-5e, 2½ mi nw Wetley pool, top Sylvan 2892 ft, top Viola 3045 ft, top Dense 3166 ft, top Wilcox 3355 ft, td 3379 ft, pb to Hunton at 2850 ft, drilled to 2920 ft, shot 40 qts, td 3379 ft, abnd.

**Tillman County**—Ray's Madison 1, nwc sw 11-2s-16w, 11 mi e of Frederick, top Granite 1880 ft, td 1894 ft, abnd.

## PENNSYLVANIA

### COMPLETIONS

G. L. Cabot, Inc.'s Wm. Cobb 1, Allegany tnp, top Oriskany 5692 ft, salt water, abnd 5702 ft.

## EAST TEXAS

### FIRST REPORTS

**Henderson County**—Tide Water-Seaboard & Humble's Allie Scott 1, center of 97.32-ac lse., Cleveland Robb sur, 13,500 ft sw Opelika oil discovery, rur, for 8500-ft test.

**Panola County**—Holcomb, Thomason et al's J. W. Bird 1, George Gallaspie sur, moving in materials. (6000 ft test).

### COMPLETIONS

**Kaufman County**—H. W. McGee et al's T. A. Elliott 1, 3150 ft fr n and 500 ft fr e lines of J. Hendricks sur, ½ mi sw Tolosa, elev 399 ft, abnd 3112 ft.

**Nacogdoches County**—D. McDaniels et al's Muckelroy 1, J. A. Cherino sur, 2 mi se Cherino, elev 186 ft, abnd 1002 ft.

**Upshur County**—Gaskill Oil Corp.'s E. E. Arnold 1, 181 ft fr n and s lines and 150 ft fr w line of 6-ac tr, across n end of J. D. Bule sur, 2 mi se Jamestown, elev 281 ft, Pecan chalk 2318-2959 ft, Austin chalk 3620-56 ft, sub-Clarksville 3656-74 ft, abnd in Georgetown lime 3674-93 ft.

## NORTH TEXAS

### FIRST REPORTS

**Archer County**—Bridwell Oil Co.'s B. D. Ikard 1, 500 ft fr n and 2600 ft fr w lines s½ sec 1890, TE&L Co. sur, 7 mi e Anarene, rur.

**Cooke County**—K. R. March et al's Poyner-Texas Co. 1, 150 ft fr n and 1170 ft fr w lines of T. Wisdom sur A-1167, lcn.

**Wichita County**—Deep Rock Oil Corp.'s L. Mackechney 3, 350 ft fr n and 275 ft fr e lines sw¼ blk 18, league 2, Denton C.S.L. sur, dr 950 ft.

### COMPLETIONS

**Archer County**—Adams O&G Co.'s M. B. Ray 1, 200 ft fr n and 150 ft fr w lines lot 25, sec 1, S. P. Ry. sur A-406, abnd 1398 ft. Bridwell Oil Co.'s A. Wolf 1, 1650 ft fr n and 482 ft fr w lines blk 4, sec 82, Clark-Plumb subdiv, Gunsite lime 983-96 ft, abnd 1092 ft. Consolidated Oil Co.'s Polk & Levy 1, 1901 ft fr n and 1050 ft fr w lines of C. K. Simmons sur, A-391, Gunsite 1133-35 ft, trace oil 1135-1200 ft, abnd. Fresno Oil Co.'s Cowan Est. 1, 600 ft fr s and 150 ft fr e lines blk 14, Jefferson C.S.L. sur, Gunsite lime 1058-60 ft, abnd 1159 ft.

**Young County**—Henry Craig et al's Griffin 1, 150 ft out of nwc sec 75, TE&L Co. sur, Gunsite lime 1079-81 ft, abnd 1150 ft.

## TEXAS GULF COAST

### FIRST REPORTS

**Chambers County**—Housh & Thompson's Robbins 1, Smith Point prospect, 400 ft out of nec of w 20 acres of an 80.9-acre tract, E. T. Branchsur, lcn.

**Harris County**—Housh & Thompson's Hine 1, San Jacinto Battle Ground prospect, 466 feet from the e and n line of 225-acre tract, A. McCormick sur, mim.

**Jefferson County**—Humble's State B-15, McFadden Beach salt dome, 660 ft nw of State B-13 and in line with State B-8 and B-13 in sec 7, lcn.

**Madison County**—Mugford & Cansey's Andrew 1,nw of Madisonville, 800 ft ns line and 530 ft we line of S. S. Cole sur, lcn.

**Wharton County**—Magnolia's Borden Estate 1, Mackey area, begin at extreme wc of E. M. Cox sur, go 990 ft sw along extended nw line of E. M. Cox sur to lcn, lcn.

### COMPLETIONS

**Harris County**—Hargrove & Hunter's Griffith 1, Mt. Houston prospect, 500 ft nw of Frazier's Griffith 1, A. Smith sur, salt water sands 4083 to 4090 ft, abnd 4141 ft.

**Jefferson County**—Humble's McFaddin State B-13, 2000 ft from nw line and 330 ft from ne line of 960-acre tract in Gulf of Mexico, abnd 6576 ft.

**Montgomery County**—Housh & Thompson's Graham 1, West Conroe area, 200 ft out of swc of 880-acre tract, M. Connor sur, salt water sand 4495 to 4525 ft and from 4686 to 4694 ft, abnd 5010 ft.

**Wharton County**—Humble's Ecker 1, w of Danevang, 466 ft from s line and 466 ft from w line of B.S.&F. sur, No. 7, abnd 6641 ft.

## TEXAS PANHANDLE

### COMPLETIONS

**Collingsworth County**—Anderson & Mee's E. M. Mooney 1, c se H&GN sec 18, blk 16, elev 2231 ft, water sand 2234 and 2351 ft, abnd 2505 ft.

**Donley County**—H. C. Robinson et al (was J. W. Jackson's) Nell Kuteman 1, nw nw sw H&GN sec 88, blk 20, elev 2702 ft, abnd 4406 ft.

## SOUTH TEXAS

### FIRST REPORTS

**Duval County**—Bridwell Oil Co.'s Welder Heirs 1, 330 ft s line, 990 ft w line, Anna Collins sur 552, rigging up. W. L. Gatlin's Escapole Est. 1, 330 ft s line, 330 ft w line of sur 73, derrick.

**Edwards County**—C. L. Alderfer and C. W. Davis' Earwood 1, 150 ft e line, 450 ft n line, 80-ac lse, CCSD and RGNG sur 158, lcn.

**Guadalupe County**—Midwestern Petroleum Co.'s Anderson 3, 150 ft nw line, 50-ac lse, 111 ft nw No. 1, Green Dewitt sur 11, abnd January 18 by H. H. Weinert and J. E. Clark, will deepen to Edward lime, td 1800 ft.

**Jim Wells County**—J. R. Hunter and W. R. Quinn's Martin and Pundt 1, 467 ft n line, 467 ft w line of s 61.75-ac of the 141.7-ac tr, J. Poitevent sur 1, ab-358, spudded. Parr Drilling Co.'s Hoffman 1, 330 ft s line, 330 ft e line of 160-ac tr, comprising reserve townsite of Springfield, section 8, Plummers resubd of Camado Ranch, spudded.

**Williamson County**—Burns Oil Co.'s Hanson Est. 1, 1357.7 ft w line, 1298.8 ft s line William Byerly sur and in 181.6-ac tr, lcn.

### COMPLETIONS

**Bexar County**—Charles Schreiner, Jr.'s McCloskey 1, 150 ft w line, 450 ft n line 42-ac tr, F. L. Desaque sur, sandy shale with alternate oil shows, 775-1100; alternate shows, 1360-1400 ft, 2 bbls oil, 8 bbls water on pump, 1400 ft.

**Cameron County** — V. D. Wedegartner's Sams-Porter 1, 950 ft n line, 260 ft e line of blk "D" San Pedro de Carricitos gr., junked 1043 ft.

**Duval County**—Luling Oil & Gas Co.'s Dimmitt 1, 466 ft s line, 466 ft e line of nw¼ section 16, Copita Farm and Garden Tracts, Jose Margello Hinojoso Gr., sand with oil odor, 3970-92 ft, salt water sand, 4787-94 ft, abnd 6012 ft.

**Goliad County**—H. R. Cullen's Pettus 1, from point where nw line 1197.46-ac intersects San Antonio river, 7408 ft se to that line; thence 360 ft e and slightly s of river. Maria de Jesus y Bravo gr, abnd 8606 ft.

**Jim Hogg County**—Atkinson and Atkinson's Yeager 1, 330 ft most s'ly s line, 1650 ft e'ly w line, of s of La Garza sur 614, Ab-117, abnd 1530 ft.

**Jim Wells County**—Tom Graham Oil Co.'s Adams 1, 330 ft w line, 990 ft n line, 321-ac lse, Marcellino Lopez "Los Presenos" gr, abnd 5350 ft. Premont Petroleum Co.'s Hewitt 1, 466 ft s line, 466 ft e line of ne¼, section 45, P. Haldeman subd of Seeligson Ranch, Richard Ross sur, Ab-405, abnd 7507 ft.

**Kendall County** — C. M. Dewey's Seidensticker 1, 150 ft s of Comfort and Sisterdale Road and 1425 ft w line of J. M. Charino sur 18, abnd 1025 ft.

**McMullen County**—Morris K. Womack and Ralph M. Sturm's Smith and Leischner 1, 330 ft s line and 330 ft e line of sec 8, A. Zumwalt sur, Ab 0859, abnd 1532 ft.

**Starr County**—H. E. Hall et al's Guerra 1, 150 ft s and 80 ft e of ne cor, share 259 and on share 253, Perc. 69, J. of Mier, will complete as water well, dropped as abnd 552 ft.

**Travis County**—Jackson and Zizinia's Carlson 1, 150 ft se line, 470 ft ne line 63.81-ac lse, Will Caldwell sur, abnd 945 ft.

**Webb County**—Gilcrease Oil Co.'s Trafton 1, 1650 ft n line, 184 ft w line, survey 281, abnd 2560 ft.

## WEST TEXAS

### FIRST REPORTS

**Jones County**—Bert Fields et al's L. B. Gray 1, 440 ft out of nec sec 41, Deaf & Dumb Asylum Lands, rur. Carroll W. Snoddy et al's C. L. Stephens 1, 220 ft out of sec sec 35, Orphan Asylum Lands, 4½ mi se Anson, lcn.

**Stonewall County** — Forest Development Corp.-Carl B. King's T. A. Ellison 1, 330 ft fr n and 660 ft fr e lines of nw¼ H&TC sec 114, blk D, 8½ mi n Aspermont, sp.

### COMPLETIONS

**Culberson County**—H. J. W. Niehaus et al's C. M. Caldwell 1, 2440 ft fr n and 1620 ft fr w lines PSL sec 15, blk 109, elev 3878 ft, abnd in hfw 4978-5008 ft.

**Tom Green County**—Tom Green Oil Co.'s J. F. Schriever 1, 150 ft out of nwc ne¼ sec 1663, A. Krending sur A-7958, abnd 2042 ft.

**Pecos County**—Ben Dansby Jr. et al's L. C. Lessenich 1, 330 ft out of sec lot 10, or 1650 ft fr s and 330 ft fr e lines H&GN sec 45, blk 9, elev 2341 ft, top Yates 1104 ft, top Yates frosted grains 1128 ft, abnd 2373 ft.

## WEST VIRGINIA

### COMPLETIONS

Rubin, Johnston et al's D. P. Curry 1, Ravenswood district, 2 mi west of Lockhart, top Corniferous 4587 ft, top Oriskany 4705 ft, 300,000 cubic feet a day, td 4721 ft.

## WYOMING

### FIRST REPORTS

**Sublette County**—The California Co.'s Government 1, csw ne 14-35n-109w, contract 8000 ft hole to drill to Wall Creek sands of Frontier formation.

## Harry Ross Dies

Harry Ross, one of the organizers of Maloney Tank Manufacturing Company of Tulsa in 1909 and president of that company since 1919, died at Long Beach, California, April 9, at the age of 77 after several months of illness.

Ross was with Oil Well Supply Company in the late nineties when he was located at Bolingreen and other oil country points before becoming manager of the Independence, Kansas, store. He came west in 1902 and in 1908 participated in development of Flat Rock field north of Tulsa.

## Jacks

The Buda Company, Harvey, Illinois, has released folders picturing and describing oil field and hydraulic jacks. Cut-away views, specifications, and prices are included.

## Diesel

The Buda Company, Harvey, Illinois, has released a pamphlet explaining the design, construction, and operation of the Buda-Lanova Diesel unit for replacement of the gasoline engine in Ford trucks. Four-cylinder units for the conventional truck and 6-cylinder units for cab-forward models are shown in detail. Complete specifications and applications are given.

## Welding

A. M. Byers Company, Pittsburgh, is distributing a service bulletin on "Welding of Wrought Iron" explaining all methods and materials in use for this purpose. The booklet contains schedules of the latest approved procedures for various types of welding and tables showing weld strengths obtained with varying methods and materials.

## Non-Metallic Flexible Tubing

Resistoflex Corporation, 370 Lexington Avenue, New York, has prepared a folder in explanation of synthetic resin tubing, available up to 1½ inches in diameter, that will resist deterioration by gasoline, oil, steam and water and retain flexibility for long periods.

## Liquid Level Controller

A new 12-page bulletin just released by Mason-Neilan Regulator Company, 1182 Adams Street, Boston, Mass., describes its line of direct-connected ball-float liquid level controllers. All types are illustrated as are the lever type valves used with these controllers. The bulletin includes ample data to enable the engineer to select proper type and size.

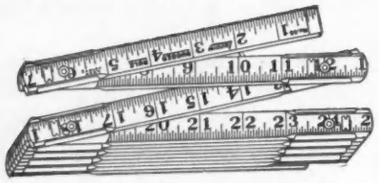
# NOTES FOR THE Equipment Buyer and User

## Folding Wood Rule

**THE LUFKIN RULE COMPANY**

A six-foot Folding Wood Rule designed to overcome the common complaint that such rules break easily has just been placed on the market by The Lufkin Rule Company, Saginaw, Michigan.

It has tough, hardwood sections of extra thickness, ⅛-inch, making it not only more durable but more rigid than ordinary rules. The smooth-working spring joints are brass plated and have patented locks, maintaining accuracy. This rule has brass strike plates, preventing wear of sections in opening and closing. The six-inch hardwood sections have a special finish, giving them a uniform, light, boxwood color, so the black markings are easy to read.



**Lufkin Rugged Rule No. 46**

Rugged Rule No. 46 is same as popular No. X-46 but without the extension slide. Its distinguishing mark is a bright red stripe down the center of each end.

## Heavy-Duty Pumper Engine

**NOVO ENGINE COMPANY**

Especially designed for pumper service, a complete new line of ruggedly constructed single-, two- and four-cylinder, radiator-cooled engines have been announced by Novo Engine Company, Lansing, Michigan. They range in size from 2 to 22 horsepower and are known as the Model "CWP" Engines.

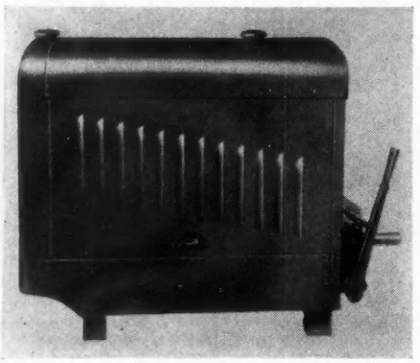
These power units are completely equipped with extra-large anti-friction bearings. The crank-shaft is exceptionally heavy and rigid. The four-cylinder engines have three anti-friction main bearings. Tapered roller bearings are used in the end position to carry any thrust load.

The Model "CWP" Engines have heavy flywheels which give smooth operation at all speeds and under varying load conditions.

The large oil and gasoline capacities allow for long periods of operation without attention from the operator.

The gear oilers used on all of these engines are positively driven from the crank-shaft and positively guarantee engine lubrication as long there is oil in the crank-case.

These engines conform to all S.A.E. standards, including accessories as: complete electric starter and generator equipment; water circulating pump; fuel pump; lubricating-oil pump and filter; and combination carburetor for gaseous fuels and gasoline. Heavy-duty Twin Disc Clutch is standard.



**Novo Engine**

Complete descriptive literature, as well as detailed specifications, is available on all sizes.

Sales and service at all National Supply Stores.

## Pressure Gauges

**TAYLOR INSTRUMENT COMPANIES**

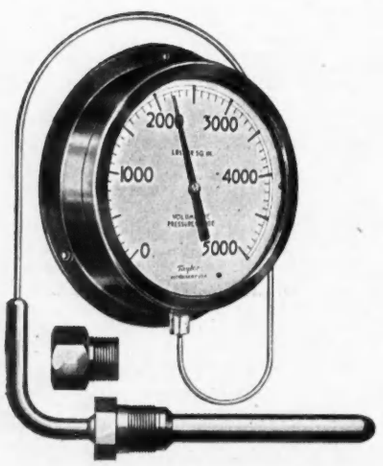
Taylor Instrument Companies, Rochester, New York, announce a new line of indicating and recording pressure gauges for use in mud pump and cementing service.

Employing a closed system very similar to a temperature tube system, the pressure-sensitive element is in direct contact with the circulating fluid. Consequently, the measuring system is instantly responsive to every pressure variation. There are no pressure taps to clog, no diaphragms to wear out. Mud cannot get into the instrument mechanism.

An inbuilt feature of this new Taylor instrument damps out pump pulsations, yet accurately measures sustained pressure changes. This means ease of reading and prolonged life for the instrument.

Temperature variations of the fluid have no appreciable effect on the accuracy of measurement due to a permanent built-in feature of the pressure sensitive element. Changes in temperature along the connecting tubing are counteracted by the use of Taylor Accuratus temperature-compensated tubing, a patented Taylor product.

The indicating volumetric pressure gauge has an 8-inch silvered metal dial with bold black numerals and graduations which assure easy reading from across the derrick floor. Both types are ruggedly constructed for heavy, permanent, service and are easily installed. Standard range is 0 to 5000 pounds.




**Taylor Volumetric Pressure Gauge, Indicating Type**

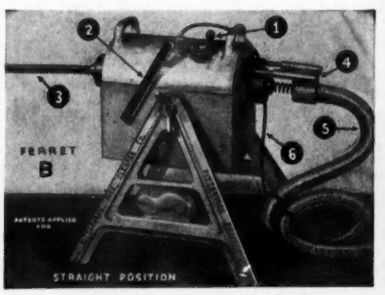
## Pipe Cleaner

**PITTSBURGH PIPE CLEANER COMPANY**

Pittsburgh Pipe Cleaner Company, 235 Oliver Building, Pittsburgh, Pennsylvania, announces the development of two motor-driven "Ferrets" for opening and cleaning clogged pipes of all kinds, coils, sewers, drains, etc.

In the industrial field, the "Ferrets" are being used to clean superheat tubes, oil and gas lines, heating coils, cooling coils, water lines, etc.

Operation of the Ferret consists of fitting a 15-foot length of helically coiled cable into a pipe-depressing clutch to spin cable, releasing clutch, and feeding again. Length after length of cable is added as required by means of a special coupling. The rapid rotation of the cable, scours the line and cleans up ordinary obstructions. Cutting tools, brushes, and special detachable drills are provided for cutting out corrosion, barnacles, etc. Ferret cables are manufactured to strict specifications so as to give toughness, flexibility, and long life.




**Pittsburgh "Ferret"**

The accompanying illustration indicates the salient construction features of the larger machine, designated as Model B: (1) Electric switch to rotate cable; to start, reverse and stop motor. (2) Clutch handle which operates clutch jaws for gripping and rotating cable. (3) Outlet of Ferret cable to pipe. (4) Slip joint connection for rear cable guard. (5) Fifteen-foot guard for slack end of rotating cable. (6) Electric connection wire with special rubber insulation which meets Underwriter's specifications. There are two handles

NO COMPROMISE
Properly designed drag bits go a long way in holding drilling costs down.
The physical properties of Silicon-Molybdenum steel are such that the bit designer can work with the demands of the service in mind, without compromises often forced by the limitations of a material.
Drag bits cast from Silicon-Molybdenum steel have high tensile and torsional strength. Impact strength is high, so that there is less danger of breakage under sudden overload. The steel is readily weldable. It is, therefore, easy to hard face or redress the bits under field conditions. First cost is low.
Drag bits are only one instance of many in which the use of Molybdenum steels is saving money in the oil fields. Our new book, "Molybdenum Steels in Oil Production", describes them and their applications. It is free for the asking.
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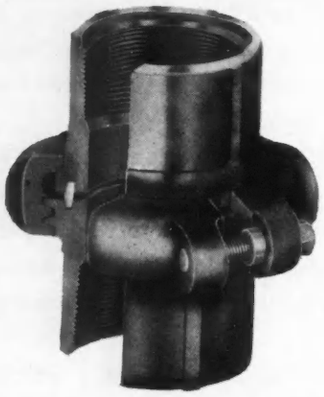
MOLY

**Red-Rex**

**ONE-BOLT**

**PIPE UNIONS**



**The new Red-Rex Malleable Union,** designed for 500 lbs. working pressure and tested to 1,000 lbs., is the sensation of the quick union field. It is made in both "short hub" and "long hub" types, and is identical in construction throughout to the high pressure steel union. Interchangeable seal rings.

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N. Perel, Manager

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**STANDCO BRAKE LINING**

Nothing novel—no bunk—but it gets the job done without scoring brake rims. See page 2100, Composite Catalog.

**Standard Brake Lining Co.**

**HOARD EXPLORATION COMPANY**

Seismograph Surveys

618 Esperson Bldg.

Houston Texas


# NOTES FOR THE Equipment Buyer and User

for convenient carrying and shifting. The base is detachable. The body of the machine is 14 inches high, 12½ inches wide and 20 inches long. Weight 85 pounds. It takes cable sizes of 1, ¾, and ½-inch which operate on ¾ to 8-inch diameter pipe.

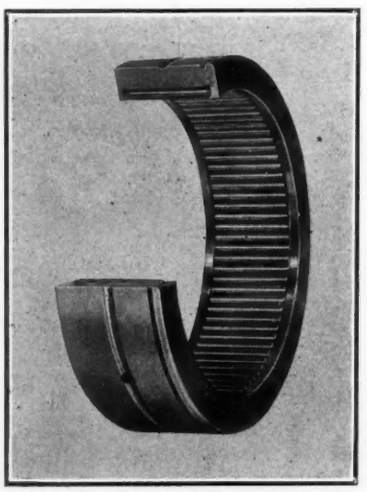
Ferret Model "A" is small, compact and easily carried. Is identical in operation to Ferret "B." It is provided with the same type of tools in smaller sizes for smaller pipes or tubes. Used on ⅜ to 2-inch diameter pipe. Weight 45 pounds.

Folder No. 139 gives complete details and the manufacturer will gladly furnish copies on request.

## Roller Bearing

**ROLLER BEARING COMPANY OF AMERICA**

One piece outer race construction is the keynote of the new Cyclops needle bearing designed by the Roller Bearing Company of America, Trenton, N. J. Company engineers have developed an ingenious method of retaining a full complement of rolling elements without the aid of any auxiliary parts, yet permitting ready disassembly in the field if so required.



**Cyclops Bearing**

The ends of the rollers are conispherical, forming ball point contact with the race lands while in their path of travel.

For economy to the user, the Cyclops bearing is provided with an oil groove and a snap ring channel which reduce to a minimum the cost of machining a recess for lubrication and locating of the bearing in the housing.

Cyclops bearings in their entirety are manufactured from SAE-52100 steel hardened through and ground to precision limits.

The bearing is designed in a range that accommodates shaft diameters from ½ to 8 inches. They are available with and without inner races in 200 different sizes.

Overall dimensions and rated capacities at different speeds are included in R. B. C. Bulletin No. SF-16.

## Water Well Pumps

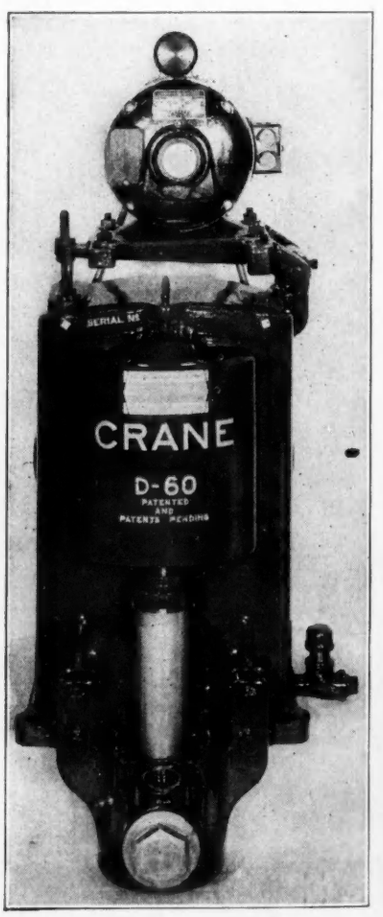
**CRANE COMPANY**

Sleek lines, the modern symbol of efficiency, ruggedness, utility, beauty and economy, have invaded the water pump field with the introduction of a new line of shallow-well and deep-well pumps by Crane Company, 836 South Michigan Avenue, Chicago.

The shallow-well pumps, referred to as the "Crane K Series," are offered both in 250 and 375 gallons per hour sizes and in both horizontal and vertical tank systems. They are designed for 40 pounds maximum pressure with 22-foot suction lift, having a 1-inch suction and ¾-inch discharge.

In conformity with the simplicity of its lines the manufacturers point also to the simplicity of the parts. Three basic sections, the power frame, water end and base are designed for perfect accessibility.

The deep-well pump, designated the D-60, has a load balancing cylinder and silent herringbone gears which contribute to quiet, economical operation. It is available with different sizes of load balancing cylinders, giving flexibility to meet any operating condition efficiently.




**New Crane Deep Well Pump**

# NOTES FOR THE Equipment Buyer and User

### S. P. Brown Elected General Manager of Hughes Tool Co.

S. P. Brown has been elected general manager of Hughes Tool Company. Until recently "Brownie," as he is known to the oil industry, has been vice president in charge of sales. He has been with Hughes Tool Company for more than 20 years.

### Wilson New Chairman; Geismar President of National Supply

At a recent meeting of the board of directors of The National Supply Company, John M. Wilson became chairman of the board and was succeeded as president by John A Geismar, who has been vice president and general manager. Other changes announced by the company include election of A. E. Walker as vice president, and R. W. Eiler, secretary.

### Wyman Howells Joins Allegheny-Ludlum Steel Corp. at Houston

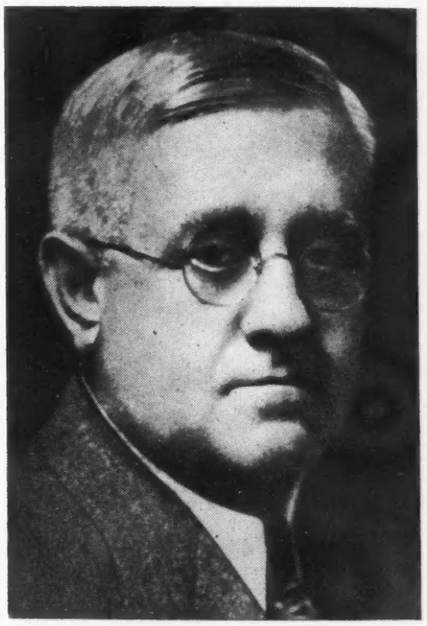
Allegheny-Ludlum Steel Corporation has announced appointment of Wyman Howells, formerly connected with Reading Iron Company, to the staff of the firm's Houston office as a salesman specializing in the sale of Allegheny Ludlum lap-weld line pipe, effective April 15, 1939.

### Howard B. Book Goes to London For Reed Roller Bit Company

Howard B. Book, division manager for Reed Roller Bit Company in Oklahoma City, has been transferred to London, England, where he will replace F. Harold Gray, who will attend the Oil-World Exposition in Houston, Texas, and visit his home plant and office.

W. H. (Buddy) Armstrong will replace Book in Oklahoma City during his absence, and A. G. Metcalfe, formerly stationed at Great Bend, Kansas, will go to Hutchinson to replace Armstrong.

**HOWARD B. BOOK**
**Goes to London for Reed Roller Bit Company**



**JOHN A. GEISMAR**
**President, The National Supply Company.**

### Hopper Appointed Representative For American Iron & Machine

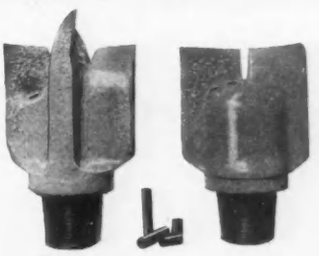
The Hopper Machine Works Company, Bakersfield, California, has been appointed warehouse and service representatives for American Iron & Machine Works Company products for California. A complete stock of equipment and competent service will be available.

### Harvey L. Miller Special Representative for Youngstown

The Youngstown Sheet & Tube Company, Youngstown, Ohio, announces the appointment, effective April 1, of Harvey L. Miller, as special representative of oil country tubular sales in the Mid-Continent field, with offices in the Continental Building, Dallas, Texas.

Miller has had long sales experience in oil country tubular goods, beginning his first employment in the sales department of The Youngstown Sheet & Tube Company, Youngstown, Ohio, more than 34 years ago. He advanced steadily in the employment of that company and was placed in charge of the district sales office of the Youngstown company at St. Louis, in 1914. In 1922 he resigned that position to take up other tubular sales work in the Mid-Continent field, which broadened his


**World Famous**
**BREWSTER BITS**



Drillers around the world are profiting by Brewster's 35 years experience by insisting on Brewster Drag Bits. Their toughness and endurance are unexcelled. Made with 2, 3, 4, and 6 blades, threaded either BOX or PIN. All of them are forged. All cutting edges set with Hard Metal Inserts and faced with Tube Borium. Water courses fitted with Hard Metal tubes. Be sure and get our quotations before you drill that next well.

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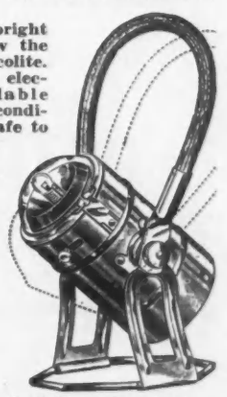
Ecolite 44 U.S.V. is approved by Underwriters' Laboratories and is the choice of over 90% of all major oil companies.



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# NOTES FOR THE Equipment Buyer and User

**H. L. MILLER**
**Special Mid-Continent Representative for Youngstown Sheet & Tube Company**

experience in the sales of oil country tubular goods.

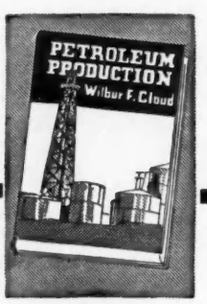
In rejoining The Youngstown Sheet & Tube Company at this time, he brings to this company a wide acquaintanceship plus a broad, practical experience which will be of value to all operators.

## Griffin Now Sales Engineer for Atlas Supply Company at Tulsa

Atlas Supply Company announces promotion of Dana G. Griffin, field salesman at Gladewater the past year and a half, to the position of sales engineer with headquarters at Tulsa. Griffin has had a long and varied experience in the field of engineering and field practices. Following completion of his mechanical engineering work at

**DANA G. GRIFFIN**
**Sales Engineer, Atlas Supply Company**


# PETROLEUM PRODUCTION




By WILBUR F. CLOUD

A new book dealing with the fundamental operations and technical processes of oil production. It offers to the oil executive, the engineer, and the man in the field a most comprehensive treatment of the subject.

**PETROLEUM PRODUCTION** contains 613 pages of text, with 280 illustrations and 75 practical tables and charts. Price $5.00. Order your copy today from **Book Department.**

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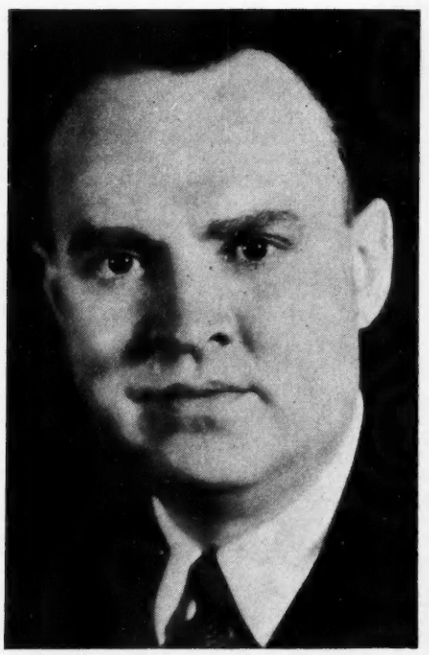
**3301 Buffalo Drive, Houston, Texas**


Georgia Tech, he was with Bruce-McBeth for eight years designing and installing gas engines in Texas. For 18 months prior to joining Atlas Supply Company, he was with Frick-Reid Supply Corporation as power builder.

## George A. Hays Advanced to Vice President of Oil Well Supply

George A. Hays, sales manager in the Midwest division of Oil Well Supply Company, has been advanced to the position of vice president, according to announcement made by Fred F. Murray at headquarters of the company, Dallas, Texas. Hays will be in active charge of the Midwest division which comprises oil and gas producing regions west of the Mississippi River, including the Gulf Coast but excluding California.

Hays was graduated from Pennsylvania State College with degree in mechanical engineering in 1922, and since that time has had a varied and continuous experience in presenting machinery and equipment to the oil industry. Following graduation from college, he started work with Wilson-Snyder Manufacturing Corporation, about the time the company's slush pump was developed. This oil field busi-



**GEORGE A. HAYS**
**Now a Vice President of Oil Well Supply Company**

ness was extended, and Wilson-Snyder was acquired by Oil Well Supply Company in 1929. Hays later joined the staff of Oil Well Supply Company, and with the beginning of 1936 moved to Dallas, where he will continue headquarters.

## South Texas Representative for Rector Well Equipment Company

Rector Well Equipment Company, Fort Worth, Texas, announces appointment of Paul E. Baimbridge as South Texas sales representative, located at 2513 Santa Fe Street, Corpus Christi. Baimbridge formerly served Oil Center Tool Company for more than a year in this same territory, and has more than

# NOTES FOR THE Equipment Buyer and User

20 years experience in the oil country. He was a rig runner for The Texas Company for three years and on the same job for drilling contractors for seven years, following which he worked for Baash-Ross Tool Company as district sales representative in North Louisiana, Mississippi and Arkansas.

**PAUL E. BAIMBRIDGE**
**Representing Rector Well Equipment Company in South Texas**

### Geophysical Demonstrations At Houston Oil Show

In addition to a complete display of geophysical instruments there will be demonstrations showing the application of equipment in geophysical exploration at the Oil-World Exposition in Houston from April 24 to 29, inclusive. Both the exhibits and the field work will be under the general supervision of the exploration committee of which J. Brian Eby is chairman.

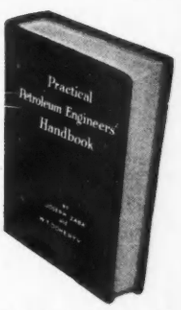
The experimental grounds of American Askania Corporation at Aldine Gardens, north of the city on the Hardy Street road will be opened for practical demonstrations of some of the instruments. Trips to the experimental station will be made at 3:00 p.m. and 5:00 p.m. on Tuesday and Thursday, April 25 and 27. Little hand plats showing the exact location of the Aldine Gardens will be supplied to those wishing to attend the demonstration work and can be secured at the geophysical display booths. Out-of-town visitors will be furnished courtesy car transportation. A section of six booths at the exposition will be devoted to the exhibiting of instruments and a display relative to geophysical prospecting. In Booth No. 1617 will be shown salt dome sections, samples of caprock, salt, and other dome minerals. Dr. Donald C. Barton of Humble Oil & Refining Company will exhibit a real photograph of Gulf Coast oil fields and the various types of Gulf Coast terrain. There will also be detail sections of several of the salt domes in the immediate vicinity of Houston, such as Pierce Junction, and miniature reproductions to scale of outstanding salt dome structures in the Gulf Coast area. These have been prepared by the geological departments of some of the leading oil companies. The models will demonstrate to the public the relation between the occurrence of oil and the salt dome structure.

In Booth 1619 American Askania Corporation will exhibit a late type of gravitymeter together with photographs, diagrams, and profiles of instruments and field work. The torsion balance and the magnetometer will also be shown.

Booth No. 1621 will show a complete representation of seismograph work as carried out in the Gulf Coast. The reflection method will be demonstrated by an electrical display, prepared by E. I. duPont de Nemours & Company, illustrating graphically reflection shooting. There will also appear photographs and seismograph equipment illustrating both the instruments and methods of this type of geophysical work.

Electrical methods of exploration for


**PRACTICAL PETROLEUM ENGINEERS' HANDBOOK**




By
**JOSEPH ZABA**
**E. M. M. Sc.**
Petroleum Engineer
Rio Bravo Oil Company
and
**W. T. DOHERTY**
Division Superintendent, Humble Oil & Refining Company.

**For a number of years** there has been a growing demand for a handbook containing formulae and other practical information for the benefit of the man working in the production and drilling branches of the oil industry. So great has been this need that many engineers have tried to accumulate their own handbooks by clipping tables, formulae and figures from scores of sources.

**The co-authors** of this volume discovered by coincidence that each had been for a period of several years accumulating practical data which through their collaboration appears in this book. Both of them are men who have not only received theoretical training but who have had many years of practical experience as engineers in dealing with every day oil field drilling and production problems.

**As a result** of this collaboration of effort the publishers of this volume feel that it is a most valuable contribution to oil trade literature.

**Its purposes** are distinctly practical. The tables, formulae, and figures shown are practical rather than theoretical in nature. It should save the time of many a busy operator, engineer, superintendent, and foreman.

**TABLE OF CONTENTS**

**Chapter I — General Engineering Data**
**Chapter II — Steam**
**Chapter III — Power Transmission**
**Chapter IV — Tubular Goods**
**Chapter V — Drilling**
**Chapter VI — Production**
**Chapter VII — Transportation**

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OIL FIELD EQUIPMENT

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# THE COMPOSITE CATALOG


# Notes for the EQUIPMENT BUYER and USER

oil will be given in Booth No. 1623. A model of Eltran field equipment will be on display, together with diagrams and instrumental parts illustrating this method of exploration which is one of the newest methods of geophysical exploration and employs the use of electrical currents in determining variations and subsurface structures.

An exhibit of the various fossils that are found in different producing horizons in Texas oil fields will be shown in Booth No. 1625 where will also be indicated the more important oil producing horizons, such as the Frio, Cockfield, Wilcox and Woodbine. Cores of such well established geological horizons as the Heterostegina lime, Pecan Gap chalk and the Austin chalk and similar formations will here be on display. Among the various types of fossils that will be exhibited will be, echinoids, oysters, ammonites, bryzoa, corals and plants.

Booth No. 1627 will exhibit apparatus to indicate how the porosity of oil sands is determined. There will be an exhibit of instruments for determining porosity and various types of electrical well logging will be demonstrated.

The geophysical committee in charge of the exhibits and demonstration work for the exposition is composed of the following members: J. Brian Eby, chairman; Dr. Donald C. Barton, Humble Oil & Refining Company; T. I. Harkins, Independent Exploration Company; Dr. E. E. Rosaire, Subterrex; G. Stubbe, American Askania Corporation; and Paul Weaver, Gulf Oil Corporation.

### Valves and Fittings

M & H Valve & Fittings Company, Anniston, Alabama, has published a 32-page pamphlet, No. 30, in description of a full line of gate and check valves from 2 to 30 inches in size, floor stands for valve stems, all fittings such as tees, elbows and crosses, and blind and companion flanges. Each item is illustrated, its capacity and other limitations set out, and other specifications and prices given in full.

### Couplings

Pittsburgh Equitable Meter Company, Pittsburgh, is distributing booklet M-700 describing bolted and boltless couplings for joining plain-end pipe. Specifications and prices are listed.

### Electric Drills

Stanley Electric Tool Division, The Stanley Works, New Britain, Connecticut, has published Catalogue No. 66 giving detailed information and illustrations on electric drills, contour grinders, saws, and shears.

### Draw Works

Emsco Derrick and Equipment Company, Los Angeles, has released Bulletin No. 108-E on the Type DEL 54-10 draw works. Specifications, dimensions, and stripped-down views of the assembly are included.

# Squeaks from the Bull Wheel

**What Consistency**

"You just can't trust anybody, nowadays. Why, my own grocer gave me a phony quarter in change this morning."

"Let me see it."

"Oh, I haven't got it any more. I gave it to the milkman."

**Teacher Knew**

What does your teacher say about your poor home work in arithmetic, Son?

She says she'd rather you wouldn't help me with it.

**Extremes**

I won't marry till I find a girl who is my exact mental opposite.

But if she's that smart, do you think she'd have you?

**Realization**

"I started out on the theory that the world had an opening for me."

"And you found it?"

"Well, rather, I'm in the hole now."

**How It All Started**

"Our new maid you think so good looking has burned the eggs and bacon," announced Mrs. Jellus sarcastically, then added sweetly: "Wouldn't you be satisfied with a couple of kisses for breakfast?"

"Sure, replied the husband enthusiastically, "bring her in."

**Literary**

The cub reporter who was assigned to cover the class plays of the high school came in for his share of literary fame when the following turned up in his write-up:

"The auditorium was filled with expectant mothers, eagerly awaiting the appearance of their offspring."

**From Little Acorns**

"Little boy, do you know what happens to little boys who use bad language when they play marbles?"

"Yes, sir; they grow up and play golf."

**Healthful**

"There's an ant in my soup."

"Surely not; perhaps it is one of those vitamin bees we hear so much about."

**Slight Progress**

"How are you getting along with your arithmetic, Sam?"

"I done learn to add up the noughts but the figgers still bother me."

**Incite Uprising**

"What has done most to rouse the working classes?"

"The alarm clock."

**Too Fresh**

"Gee, girlie, but I'd like to make your dreams come true!"

"You try it, big boy, and I will slap your face!"

**But It Won't Work**

"Mrs. Smith has a new hat, darling."

"Well, dear, if Mrs. Smith was as attractive as you are she wouldn't have to depend so much on new hats."

**Bad Risk**

The man went into the insurance office to have his life insured.

"Do you drive?" asked the agent.

"No," informed the applicant.

"Do you ride a bus?"

"No."

"Do you fly?"

"No."

"Sorry, sir," snapped the agent curtly, "we don't insure pedestrians."

**Utility**

"Do you think that the radio will ever take the place of newspapers?"

"No; you can't swat flies with a radio."

**The Clinging Type**

"Did you say your husband was fond of those clinging gowns?"

"Yes, he likes one to cling to me for about three years."

**Just a Dream**

The patient had just come out of a long delirium.

"Where am I?" he sked feebly, as he felt loving hands making him comfortable. "Am I in heaven?"

"No," cooed his wife, "I'm still with you, dear."

**Why Bother?**

Jimmy, how many days are there in each month?

"Thirty days hath September,
All the rest I can't remember.
The calendar hangs upon the wall;
Why bother me with this at all?"

**The Best**

Poor Danny, he died from drinking shellac.

Well, at least he had a fine finish.

**Perennial in Bloom**

"What would your wife say if you bought a new car?"

"Look out for that traffic light. Be careful now. Don't hit that truck. Why don't you watch where you're going? Will you never learn?"

**(Drop)tical Illusion**

A drunk tried several times to navigate a revolving door, but finally gave up the attempt in disgust and leaned despondently against a lamp post.

A man came along the street and walked into the door. As it revolved, the other side revealed a pretty girl stepping from it. The drunk looked intently at her and remarked: "It's a good trick, but I still don' shee wha' that guy did with hish clothes."

**Example**

Don't forget that you can't eat too much fruit for your health.

But, er Adam did.


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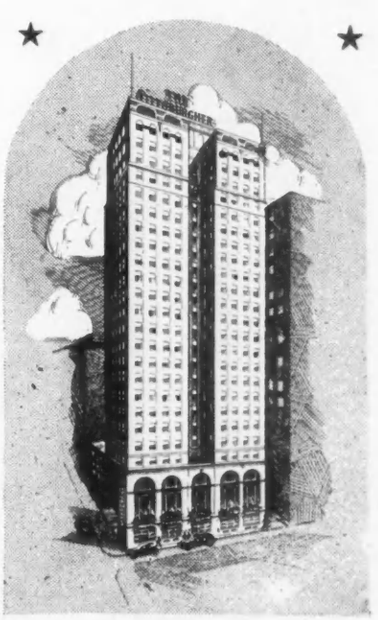

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A Knott Hotel Joseph F. Duddy, Mgr.

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